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ESSAY ON LARYNGISMUS PARALYTICUS.

BY HEMIPLEGIA.

MR. CHAIRMAN AND GENTLEMEN,—Laryngismus paralyticus, the subject to which I would draw your attention for a short time this evening, is a most serious defect, greatly interfering with the usefulness, as well as with the pecuniary value, of horses, therefore of the utmost importance to all men having anything to do with the most useful of our domesticated animals.

It is usually spoken of under the rather vague term of roaring, but this is only one of the many forms or conditions causing roaring, so I think the term Laryngismus paralyticus rather the best and most scientific name yet put forward, in that it is getting a great deal nearer to the actual disease. No doubt it is only a symptom of the disease, but in the same way, properly speaking of the term roaring in connection with this disease, then we see that roaring is only a symptom of a symptom.

The malady is undoubtedly a very old one, although it does not seem to have been much taken up by farriers or veterinarians until last century, and even this century was started before it was investigated or taken much notice of in enlightened Britain.

Definition.—It is a paralysis of most of the muscles of the larynx, resulting from paresis of the inferior or recurrent laryngeal nerves, and in the great majority of cases of the left one only.

Just to illustrate what I have to say later on in connection with the pathology of the disease I think it would be most advisable to give a brief outline of the anatomy and physiology of the structures immediately concerned in or figuring prominently in the pathological condition with which I have to deal.

* Read before the Edinburgh Veterinary Medical Society.

I. *Cartilages.*

The cartilages of the larynx directly concerned in the production of the symptoms of this disease, are the arytenoids, and in by far the great majority of cases, the left one only. These are almost triangular-shaped pieces of cartilages, swinging by their postero-internal process by a diarthrodial joint with a hinge-like motion on the superior border of the median line of the bezel of the cricoid cartilage. The anterior process, Processus vocalis, forms, with its fellow of the opposite side, a projection over the supra-glottic fissure of the larynx, making the posterior boundary of the pars vocalis. To these processes are attached the true vocal cords, which are the principal direct means of causing the characteristic noise, namely, roaring. The postero-external angle is rough for muscular attachment, and will be mentioned later on in connection with the muscles. It is called the Processus muscularis.

II. *Ligaments.*

The only ligaments I need here mention are the thyro-arytenoids. These are yellow elastic bands stretching from the inner side of the thyroid cartilage to the processi vocali of the arytenoids, having a free and a fixed border. The free border constitutes the true vocal cords. How they become implicated in this disease will be described later on.

III. *Muscles.*

All the muscles of the larynx are affected more or less with the exception of the crico-thyroid, but as the dilators only have anything to do with the production of the symptoms of this disease, I will confine myself to them.

They, namely, the posterior crico-arytenoid muscles, are strong, flat, involuntary muscles, situated on the posterior part or bezel of the cricoid cartilage, originating from the roughened bezel before-mentioned, to be inserted to the processus muscularis of the arytenoid cartilage. As with the cartilage, of necessity it must be the same with the muscles as regards the affection of the left predominating over that of the right or of both.

IV. *Nervè Supply.*

The nerves supplying the dilator muscles, already spoken of, with motor power, are the recurrent or inferior laryngeal,

right and left. These nerves are branches of the vagus or pneumogastria given off within the thorax. For what purpose they are given off within the thorax, just to proceed back up the neck in the course of their mother nerve, nobody seems to be perfectly clear. Except to be a most fertile source in the production of the malady now under consideration, I can't see any other reason for their strange behaviour. The diversity of relations of the recurrents as they leave the vagi, is well worthy of note; in fact, is of vital importance in the etiology of the disease. It is as follows:—

The right is given off as the vagus passes the first rib winding round the origin of the dorsal artery and proceeds up the neck in the jugular furrow to be distributed to the muscles of the larynx.

The left is given off further back than the right, near the root of the lungs, winding round the posterior aorta related with the bronchial, and later with the tracheal lymphatic glands. The course is then similar to that of the right.

The superior laryngeal nerves, right and left, supply the sensory nerves to the muscles of the larynx. They do not take such a course as the inferiors, being given off directly the vagi leave the cranial cavity.

Physiology.—The physiology of the anatomical structures just referred to consists in regulating or dilating the opening, so that sufficient air is forthcoming which is required in the lungs. The cartilages are the direct means of the widening and contracting of this opening or glottis. Of course the power of moving these cartilages lies in the muscles and the stimulus to the muscles in the nerves. Under physiological conditions, when an animal is at rest the larynx is simply in a passive condition, no or little movement being appreciable, the requisite volume of air being drawn in and expelled through the contracted glottis without the slightest alteration in the size of the opening, consequently the dilator muscles are in a totally passive condition.

When the animal is exerted or excited in any way, a much larger quantity of air is required to be drawn into the lungs for the due oxidation of the increased flow of blood consequent upon the larger quantity of oxygen required by the active muscles. To admit of the larger volume of air a larger opening is required in the larynx. This is when the powerful dilator muscles—namely, the posterior crico-arytenoids—come into play. Responding to an impulse from the inferior recurrent laryngeal nerves, they simultaneously

contract. This contraction swings in the manner beforementioned, the processi vocali apart carrying with them the true vocal cords. As a consequence of this, we readily perceive how the pars vocalis is rendered a great deal larger and also a new opening is formed much smaller than the other between the two arytenoids, called the pars respiratoria. It is not difficult to perceive the immense difference made in the lumen of the larynx, and we can readily grasp, I think, the vital phenomena, which are certain to follow in the trail of any pathological condition interfering with the dilation just mentioned.

Summary.—The dilator muscles being involuntary by no will power on the part of the animal, simply come into full play during severe exertion or excitation and when the animal is at rest are in a state of perfect tranquillity.

Pathology.—Under pathological conditions, *i.e.*, an animal affected with this disease, precisely the same thing happens when the animal is at rest as in health; the air passing in and out without the slightest abnormal noise or movement on the part of the larynx, but, on the other hand, when the animal is exerted or excited, the power of dilating the glottis is lost on the left side particularly, and as a result no expansion or dilation on the part of the larynx follows, the vocal cord as well as the arytenoid cartilage of that side causing an obstruction to the increased volume of air required in the lungs and the characteristic sound in this condition.

The muscle receiving no stimulus from the nerve does not perform its normal function, and from disuse it gradually atrophies, so, in a *post-mortem* of a horse badly affected, on examination the muscle will have perhaps wholly disappeared. The rest of the muscles of the affected side, the antagonists of the dilators, viz., the constrictors, are also in a state of fatty degeneration though not to such a marked degree. These muscles are in no way directly concerned with the production of the symptoms of this disease, although in an old-standing case those of the opposite side may be a source of distortion to the glottis by their contracting and adding to the bad symptoms already present. It is rather a peculiar fact that the dilator muscles begin to degenerate long before the constrictors.

Symptoms and Diagnosis.—The first and most important diagnostic symptom is the noise or roaring emitted at each inspiration when the animal is in any way exerted or excited, depending entirely, of course, on the extent to which the disease has attained as well as to the extent of the

exertion to which the animal has been subjected. The noise or stridor is only emitted during inspiration, rarely expiration, because then the rapid inrush of air tends to throw the arytenoids with the vocal cords over the glottis; the lateral ventricle will thereby be filled with air. While at each expiration the outrush of air tends to throw the arytenoids forwards, thereby mechanically dilating the glottis. The noise has been compared to a rasping or sawing sound and is due to a large volume of air being forced through a comparatively small opening with vibration of the vocal cords. Some authorities state that this vibration can be felt with the hand over the larynx. At the commencement of the disease it is a sort of whistling, wheezing sound that is heard, which, as the disease advances, becomes louder, deeper, and more acute.

Some authorities, however, consider the whistling as the last stage of the malady, theorizing on the grounds that the smaller the opening formed, the greater tendency there is to produce a whistle. This, however, I think does not come under the head of laryngismus paralyticus, being more of the nature of some of the symptoms of the other form of roaring, *i.e.*, laryngitis. In such a case a round hole is made by the inflammation of all parts, this round hole being absolutely necessary to produce a whistle. In the disease under consideration no such round hole is made; however, it might be possible if both sides were affected. It is an extremely difficult matter to accurately name, as being the characteristic noise, any one particular sound, because of the legion of different stages that the disease may be got at and of the possible immense differences in the length and tension of the vocal cords. Each writer seems to have a different idea as to the nature of the sound. The next symptom in an animal badly affected is dyspnœa or great difficulty in breathing. This is seen when an animal has been exerted beyond his power of endurance, and if not immediately stopped, he will become asphyxiated and die instantly. The expiratory movements are increased out of all proportion to the inspiratory. The nostrils become widely dilated and the larynx is seen vibrating. The cough. This is described as being deep and sepulchral, caused by the sudden expiration through an abnormal diseased larynx.

Degeneration or atrophy of the left posterior crico-arytenoid muscle, might be felt by careful manipulation with the hand and comparing it with that of the right. On examining a horse for soundness of wind, the most reliable test is that of exerting the animal. If of the lighter breed of horse, gallop

him on sand or through a ploughed field; if of the heavier type, make him pull a heavy load or trot him with a light load up hill. What is required, is to have the respiratory movements called into vigorous and prolonged action, no matter what breed. The animal on being galloped should have, as far as is practicable, a perfectly free head and should be galloped past (close) you. I would strongly advise you on examining a horse, to notice particularly that there is no band or strap pressing on nostril, thereby regulating the amount of air getting to the larynx, because, if such were the case, a tolerably bad roarer might not give a single sound and induce you to pass that horse as sound, which would be rather a serious matter for the veterinary surgeon.

One of our greatest authorities at the present time recommends that animals for harness purposes should be tested both in the saddle and harness, because, he holds, some horses will roar in saddle, not in harness, and *vice versâ*. I will not attempt a reason for this; perhaps the different way in which holds its head will account for it.

Another test is to cough the animal by pinching the larynx with the fingers. If the cough is clear and hard he is sound, if deep and sepulchral he is unsound. The fact that there is so much difference in the sensitiveness of the larynx of different horses, particularly aged horses, renders this a most uncertain test. Still more uncertain is that of putting a horse against a wall and hitting him on the abdomen with a switch—on the event of a groan or grunt being indulged in he is looked on as unsound, or if he is not already a roarer he will be.

Causes.—Predisposition. That a certain predisposition in certain breeds or strains of horses exists there can be little doubt.

I think there is no such thing as direct congenital roaring, *i.e.*, an animal born a roarer, but there is a predisposition present which renders the animal susceptible to the disease if exposed to certain conditions. This predisposition I believe to be no other than that of a predisposition to respiratory or chest affections. The influence of climate bears out, I think, this idea to a very great extent, for then we notice that an animal bred from roarers, both sire and dam, will, if in a warm, dry climate such as India, be perfectly sound in this respect. If it was a hereditary condition then these animals would, in all probability, become roarers, just as in colder, damper climates animals with long, thin necks, etc., are said to be predisposed to this condition, but I think

there will be just as many horses with just as long necks in India, South Africa, California, etc., and never become roarers.

Breeds.—Certain breeds are said to be more predisposed than others, but I think the reason that the condition is more rife among race-horses than others is because of the totally different mode and age of breaking.

Size.—It is certain that the smaller the animal the less likely will he ever become a roarer; in fact, in ponies, it is an almost unknown condition.

Sex.—The percentage of roarers among mares and geldings is, I think, almost equal, but among stallions is very high.

Predisposing and exciting Causes.—The most important of these are:—Tumours pressing on the nerve, thereby stopping the motor impulse to the muscle; as a consequence this condition must of necessity follow through disuse. This, I think, is not very common, and is just as liable to affect the right as the left side. Along with tumours might be mentioned the swelling, sometimes the result of phlebotomy causing an obstruction in the same way as tumours. This is seldom met with since bleeding has been almost universally stopped.

Disease of the bronchial and tracheal lymphatic glands alongside which the left recurrent nerve has to pass while yet in the thorax is without doubt a most fertile source of the disease. These glands when inflamed and enlarged will press on the nerve exactly as is the case with the tumours. Its being, perhaps, the most common cause of the disease is proven by the fact that on *post-mortem* examinations of horses that have been roarers, the great majority of them have these lymphatic glands diseased.

An aneurism of the aorta just at the point of giving off of the left inferior nerve will act in the same way. Direct injuries to or section of these nerves or the vagi would, of course, bring about the disease to a marked degree.

It is also produced in a most violent form and in an exceptionally short space of time by feeding horses on an Indian vetch, *Lathyrus sativus*, or muttor pea. This is a small, angular, shrunken, dark or greyish coloured pea, grown largely in India. The poison is either due to a mould or fungus, or to an alkaloid within the pea. I am not prepared to say which is the true cause, but I am of opinion it is the fungus, the result of, perhaps, being badly kept or harvested; the shape of the pea would, I think, point in that direction. The pea itself is of the most nutritious kind, being

very rich in albumen. It is said that by thoroughly washing the pea, it is rid of the poison; but it is certain that by boiling either the pea or the meal, the poison is destroyed. This is abundantly proved by the fact that large quantities are used as feeding meal for cattle by farmers, and to them it is never given raw, and cattle are very rarely affected. A horse receiving about six pounds of this pea per day, for ten days or a fortnight, will suddenly begin to manifest to a considerable degree all the symptoms of the disease, with very slight exertion or excitation. Atrophy of the muscles is imperceptible in *post-mortem*, because the horse dies so soon after attack. I would be inclined to think that in this case both sides would be affected, accounting for the almost momentary asphyxiation of the animal. Rice straw, on account of being badly made, also contains this fungus, and produces the same symptoms.

On discontinuing the use of both, a great many of the affected animals will get all right, but some will be permanent roarers.

Another important cause is the training and racing of two-year-old thoroughbreds before they are in a fit state for so doing. But how, I am not prepared to say unless, as some suggest, the stretching of the nerve during severe strain, or, perhaps, from debility of the muscle before it is properly developed.

This condition very often occurs after a horse has been badly affected with Strangles.

Treatment.—Prophylaxis. Animals having this disease should never in this country be bred from, as the hereditary predisposition will certainly be there, and may ultimately reveal itself. The reason that Shire horses are getting to be a sounder set of horses in this respect than Clydesdales, is that Shires before being awarded a prize at English shows, have to stand a very rigid veterinary examination. This should been forced at all our shows among all breeds of horses. Hygienic surroundings should be of the most perfect order so that the animal may be enabled to breathe any amount of of cool fresh air.

Medical treatment.—This is only resorted to when the disease is of recent origin. If the muscles are in a state of atrophy nothing will restore them.

Potassium iodide has been given with successful results when the disease was especially caused by enlargement of the bronchial lymphatic glands, by virtue of its alterative powers, I suppose. Arsenic, chlorate of potash and strychnine

have also been tried with some little success, the latter being used both externally and internally. Firing and blistering over the larynx have not met with much success. Stimulating the muscle with faradic currents of electricity have in some cases been successful, but as a rule it was only temporary.

Surgical treatment.—Tracheotomy has been performed on affected horses, and although it does not contribute in the slightest towards the curing of the disease, yet it lessens the symptoms, allows the animal to breathe freely and do a fair amount of work. The tracheotomy tube, or cannula, has of course to be worn during the rest of the animal's life.

Arytenotomy is sometimes performed on animals that have totally lost the power of moving the cartilage, or in other words, on chronic roarers. This operation is of comparatively recent origin, and has not been very largely tried, chronic roaring being regarded as incurable.

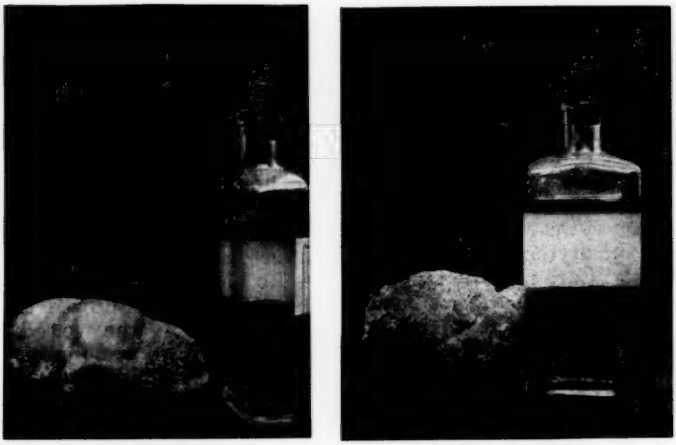
The animal is cast first on his back and given chloroform. An incision from four to six inches in length is made, extending from the body of the thyroid cartilage to the third tracheal ring on the median line. The lips of the wound are drawn apart, and the interior explored. A thorough examination of the affected parts having been made, the vocal cord and the arytenoid cartilage of the affected side are dissected away. Care must be taken to allow no blood to go down the trachea. Parts are antisepticised, and the horse allowed to get up. The animal breathes almost entirely by the wound, this for the purpose of keeping the larynx as still as possible. He gets no food for two or three days, then he is allowed sloppy mashes. He is kept in a perfectly clean box for six weeks, then given gentle exercise, and increased as time goes on. In a great many cases the roaring will have disappeared. Some will make a little noise, but all are benefited by the operation. This is only one of a great many different modes of operating, such as taking away the vocal cord only, the arytenoid cartilage only, or part of the arytenoid cartilage only. The operation of Fleming's, to which I have referred, has met with, perhaps, more good results than any other.

PROFESSOR KOCH'S cure for rinderpest is regarded with the gravest misgivings in official circles. The cattle treated strictly according to Dr. Koch's method are dying in hundreds.

A RENAL CALCULUS.

BY E. BOVET, ESQ., V.S., DENVER, COLORADO.

THE subject of this communication was a gelding which had been ailing for some two years, colic being frequently observed, the urine being tinged with blood and containing pus. The horse finally became so much emaciated as to be totally unfit for service, and consequently he was destroyed. On *post-mortem* examination the left kidney was found to be reduced to a thin-walled cyst containing the calculus shown in the accompanying illustration. The calculus was sur-



rounded by a considerable quantity of semi-inspissated pus. The right kidney was markedly hypertrophied.

[This calculus was interesting because of its having one end rounded and smooth—polished in fact—while the other end possessed the roughness customary to renal calculi. The following particulars are interesting: Weight, 17 ozs.; length, $4\frac{3}{4}$ in.; width, $3\frac{3}{4}$ in.; greatest circumference, $11\frac{3}{4}$ in.; transverse circumference, $9\frac{3}{4}$ in.

The history, etc., of this interesting case was communicated by T. Bowhill, Esq., F.R.C.V.S.—ED.]

Army Veterinary Department.

Extract from *London Gazette*, dated April 6th, 1897:—"Vet.-Lieut.-Colonel R. Poyser, F.R.C.V.S., D.S.O., is placed on retired pay. Dated 7th April, 1897.

Extract from *London Gazette*, dated 13th April, 1897:—"Veterinary-Major J. Reilly, from R. H. Guards, to be Veterinary-Lieutenant-Colonel, *vice* R. Poyser, F.R.C.V.S., D.S.O., retired April 7th, 1897."

"Vet.-Major J. W. Evans, from half-pay, to be Vet.-Major, with precedence next below Vet.-Major G. J. R. Rayment, in succession to Vet.-Lieut.-Colonel R. Poyser, F.R.C.V.S., D.S.O. Dated 14th April, 1897.

Vet.-Lieut.-Colonel J. Reilly is appointed District Veterinary Officer at Aldershot, *vice* Vet.-Lieut.-Col. H. Thompson.

Vet.-Major J. W. Evans is posted to Woolwich for duty.

Vet.-Captain J. Cooper arrived from India on 7th inst. on six months' leave of absence.

Vet.-Captain F. J. Short and Vet.-Lieut. J. Loughlin arrived from India 7th inst., having completed tour of service in that country.

Vet.-Lieut. W. A. Pallin has been detailed for duty with 8th Hussars, Leeds.

Arrival.—Vet.-Lieut. A. H. Lane arrived from Egypt on the 7th inst. for duty at home.

Extract, *London Gazette*, April 20th, 1897.—The undermentioned Veterinary-Captains to be Veterinary-Majors. Dated, April 21st, 1897:—D. C. Pallin, J. A. Nunn, F.R.C.V.S., C.I.E., D.S.O.

Arrivals. — Veterinary - Lieutenant - Colonel R. Poyser, F.R.C.V.S., D.S.O., arrived from India, 14th inst., on retirement. Veterinary-Captain R. W. Burke joined at Sheffield on 16th instant for duty.

Editorial.

A PROSECUTION BY THE R.S.P.C.A.

A CASE was tried before the Leeds Stipendiary Magistrate on 8th April, of which a short report is given on another page.

The facts are briefly as follows:—It appears that the defender, a sheep dealer, sent some fat sheep to the Leeds Cattle Market for the purpose of sale. These sheep were clipped; they were trucked to Leeds, and driven on the

morning of the sale from the railway station to the cattle market, and placed in pens. The greater part of the Leeds Cattle Market consists of open pens, but at its south-west end there is a covered shed about 100 feet long, completely boarded on the south-west from ground to roof; at its lower extremity there is an open space of seven feet high, and a boarding about other seven feet from the roof downwards; beyond this is a roadway 16 feet broad, and at the side of which is a wall seven feet high, the upper part of this wall being on a level with lower ends of the boards descending from the roof. On the north-east side is a partition descending about fourteen feet from the roof, and an open space seven feet high from the termination of this partition to the ground, and the upper end is well protected both from wind and rain.

This shed was built by the Leeds Corporation to give protection to calves, pigs, and clipped sheep, and about its most central portion are several pens surrounded by plates—tin or iron, I forget which—which protect the animal more effectually from the cold. For these pens 6d. extra is charged, and the defender in this case always paid the extra 6d. for his clipped sheep during cold weather.

It was alleged by the prosecution that the roof was leaking on that day and that when it rained, the water from the leaky roof dropped upon the sheep and caused them to suffer. The evidence upon this point was very contradictory, the prosecution alleging that it was a boisterous, showery morning, the wind blowing from the south-west—the side protected by a complete boarding—and that a piece of tarpaulin had been blown off the roof just over the pens in which sheep were, and that the rain dropped from the roof on to the sheep. On examination by Mr. Mason, Mr. Bowman, and myself, it was found that the tarpaulin had been blown off, and that there were narrow spaces between the boards which may have let in some water during heavy rains. The inspector of the market, however, proved that the tarpaulin had been blown off subsequent to the exposure of the sheep.

The evidence was conflicting and the judgment for the defender a very narrow one, and no expenses allowed. Now in ordinary cases the successful party generally obtains costs, but the R.S.P.C.A. seem to be highly favoured in this respect, and seldom, indeed, are they asked to pay the costs of the other side, but when the defender loses it is a different story, and he is often made to pay on the higher scale.

I may be pardoned if I point out the methods as to the

clipping of sheep adopted by the most successful and extensive sheep farmers in Scotland, and it must be admitted that they know their business, and would be the last in the world to do anything prejudicial to the sheep and damaging to their own interests.

The Show and sale sheep—that is to say, sheep intended to be exhibited at the great Shows during the summer—are clipped about the middle of January, and kept in covered sheds, railed at the sides or partly boarded, and immediately after clipping the condition of the sheep improves. Some of the animals shiver slightly every now and then for a few days, but they feed well and seem quite comfortable. Fat sheep of all breeds are clipped just before being sent for slaughter, as it is found that when the wool is long it is almost impossible to travel them when the roads are wet, on account of the clogging and matting of the wool, which becomes loaded with mud from off the roads, fields, etc., over which they travel to the railway. Store sheep are clipped about May, and ewes with lambs are clipped after the lambs are weaned in early autumn. The only class that seems to suffer, not from clipping, but for the want of it, are the ewes which have to carry their summer coats during the hot weather.

I think it is monstrous to drag a man into Court, and subject him to all the anxieties of a lawsuit, and not to allow him legal expenses in all cases where the prosecution has failed to obtain a conviction.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

A QUARTERLY meeting of the Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, on Wednesday, the 14th instant. There were present Mr. R. C. Trigger, President, in the chair, General Sir Frederick FitzWygram, Vet.-Colonel Lambert, Vet.-Captain Butler, Messrs. Barrett, Beddard, Bower, Dewar, Dollar, Edgar, Elphick, Fraser, Hartley, Kidd, Locke, Mason, McFadyean, Mulvey, Penberthy, Pritchard, Simpson, Villar, Wartnaby, Williams, and Wragg, Mr. Thatcher (solicitor), and Mr. A. W. Hill (secretary).

On the motion of Mr. BARRETT, seconded by Mr. WRAGG, the minutes of the previous meeting were taken as read and confirmed.

The SECRETARY reported that the following gentlemen regretted their inability to attend the meeting: Messrs. Peele, Abson, Faulkner, and Lawson.

The PRESIDENT: I have a very sad announcement to make with regard to Mr. Faulkner's absence. I am sure you will all deeply regret to hear that he has sustained a very severe domestic affliction in the loss of his wife. He has wired to say that, as one of the retiring councillors, he does not propose to seek re-election.

On the motion of Mr. LOCKE, seconded by Mr. KIDD, it was resolved that a letter of condolence be sent to Mr. Faulkner expressing the deepest sympathy of the Council with him in his bereavement.

The PRESIDENT: I am also sorry to say that Mr. Abson is prevented from being present owing to a severe illness of some weeks' duration, and that he has had to undergo a rather serious operation. Mr. Peele is also absent through illness.

Mr. McDowell's Appeal.

The PRESIDENT: You will remember the student, Mr. Albert McDowell, whose case you have already had before you. He has come all the way from Ireland to give an explanation of his conduct, and he is waiting below. Mr. Thatcher has prepared a report of the case, which he is ready to read to you.

Mr. BARRETT: Was the certificate sent back in order that we might test whether or not it had been tampered with, or were there other grounds on which we referred the certificate back to the committee.

Mr. THATCHER (solicitor): The Council decided that it should be sent back. Mr. McDowell is now bringing a sort of appeal to the Council to reconsider their decision of last July. If he had presented these two certificates at the time untampered with, the secretary of the Scottish Board, under the then existing regulations, would have admitted him—and properly admitted him.

Mr. THATCHER then read his report, which stated that in the month of July, 1896, Mr. McDowell applied to be examined for his first professional examination, and tendered to the Board of Examiners in Scotland a certificate which purported to be issued by the Educational Institute of Scotland, "Royal College of Physicians and Surgeons, Edinburgh, and the Faculty of Physicians and Surgeons, Glasgow," "Preliminary Examination in General Education," from which at first sight it would appear that he had passed in English, Latin, arithmetic, algebra, geometry, and French. He was, thereupon, admitted to his first professional examination and passed. One of the certificates recognised as an educational certificate at that time was the Educational Institute of Scotland preliminary medical examination. Some time afterwards enquiry was made as to the genuineness of the certificate, and it then appeared as if it had been tampered with. The facts were brought to the attention of the Council by the Examination Committee, and it was decided that Mr. McDowell must pass an educational examination, and after he had done so present himself again for his first professional examination. It seemed to be admitted on common ground that Mr. McDowell had altered the certificate before presenting it to the secretary. His Principal, and also the Principal of the Educational Institute of Scotland, gave him a good character.

Professor MCFADYEAN: With all due deference to the opinion of the solicitor, I must say that I think that these two certificates untampered with would not have been rightly accepted by the secretary in Scotland. It is true that they might have been accepted, but they would have been wrongly accepted, because at that time our regulations said, "A certificate of the preliminary medical examination of the Educational Institute of Scotland." That was one of the certificates, and the moment the two certificates granted on two examinations were given that ceased to be the certificate referred to.

It is within our knowledge that Mr. Rutherford did, for a certain time, accept certificates that were illegal.

Mr. BARRETT: No, not necessarily.

Professor MCFADYEAN: But as soon as it was brought to the knowledge of the Council it was stopped, and Mr. McDowell's certificate was referred back to ascertain whether he had passed all the subjects at one time, or whether he had written in one of the subjects granted on a previous occasion. I may point out that we have rejected certificates exactly the same as this on several occasions lately—that is to say, a certificate granted as the result of two or three separate sittings of the students, and we could not accept this without putting a premium on dishonesty. In the case of students who have sent us up certificates exactly like this, but honestly, and we have refused to accept them, how can we accept this one?

Mr. THATCHER: I may point out that at that time there was a resolution in force, rightly or wrongly, and if anybody had presented (and I daresay did present) a divided certificate, it would have been accepted: and this would have been accepted if the student had acted straightforwardly.

Professor MCFADYEAN: The expression "No matter how they were obtained" did not mean that they were obtained by fraud.

Mr. THATCHER: The two certificates untampered with were not obtained by fraud, and they would have passed him.

Mr. DOLLAR: There is possibly a slight divergence of views on the question of whether two certificates would have been accepted at the time mentioned or not, but I think quite apart from that there is practically a perfectly plain issue before us, and it is upon that issue that we ought to form our judgment. A man obtained two certificates. He might possibly have been admitted to examination if he had presented those two together, but unfortunately he himself was of the opposite opinion. He thought that these two certificates would not be accepted, and he therefore had occasion to resort to tampering with them. That, of course, is a very serious matter, and the Council has had it under their consideration. The Council have shown a degree of clemency in the matter, and I think uuder the circumstances the student might be allowed to go up for his examination in the usual way, provided he produces an undivided certificate, as is now required; but any further exhibition of clemency on our part would, I think, be a grave injustice to other men who presented themselves at the same time, and we should be placing ourselves in an altogether false and dangerous position.

The PRESIDENT: Are we to hear Mr. McDowell's explanation of this alteration of the certificate, or are we not?

Mr. DOLLAR: Is it not a fact that the Council has itself examined the certificate, and the Examination Committee itself has examined it, and decided that it has been altered? And is it not a fact that these certificates had been submitted to the educational body in Scotland, and that that body has confirmed the fact?

Mr. THATCHER: There is no doubt about that.

Professor EDGAR: I beg to move that Mr. McDowell be not received into the Council chamber, and be not heard in explanation.

Mr. MULVEY: I beg to second that. This case has been before the examination committee on three separate occasions, and they have reported to the Council that they consider Mr. McDowell was not eligible to present himself for examination, and that the certificate had been tampered with. That has been confirmed, and the Council have agreed to it and decided that the certificate should not be accepted, Under those circumstances, I think it would be altogether out of place to re-hear the case.

Professor PRITCHARD: The Council has already dealt with the matter, and I am astonished to find that it has been brought up again.

The resolution was then put and agreed to.

The Solicitor was requested to inform Mr. McDowell of the Council's decision.

Correspondence.

The SECRETARY read a letter from Professor McCall, acknowledging the thanks of the Council for what he had done in connection with the recent examinations.

The SECRETARY read a letter from Mr. Forbes, enclosing a statutory declaration made before a notary public, asking that a new diploma should be granted to him, he having lost the original.

On the motion of Mr. MULVEY, seconded by Mr. MASON, it was resolved that a new certificate be granted to Mr. Forbes.

The SECRETARY read a letter from the Worshipful Company of Farriers, enclosing a copy of the report for the year ending 31st December, 1896, prepared by the committee appointed to carry out the scheme for the National Registration of Farriers.

The SECRETARY read a letter from the examiners appointed in connection with the Royal Agricultural Society's examination, awarding the prizes given in connection with it.

The PRESIDENT: I now have to bring before you a petition from the students of the various colleges in connection with the last class "D" examination. I do not propose to allow any discussion on it.

Mr. MULVEY objected to its being read, and said that the students should apply through the Principals of the Colleges.

Professor MCFADYEAN asked for a precedent for such opposition.

The SECRETARY then read the following petition:—"We, the undersigned students of the Royal (Dick) Veterinary College, Edinburgh, New College, Edinburgh, Veterinary College, Glasgow, and Royal Veterinary College, London, do humbly petition the Council of the Royal College of Veterinary Surgeons that the "D" examination uuder the four years' course be held in two parts, viz., a theoretical and practical; and that a man passing the theoretical and failing in his practical be not compelled to attend a further session at college. For two reasons we ask this: (1) On the grounds of expense. (2) After attending the extra session we shall have no greater experience, especially in cattle."

Mr. BARRETT: Might I ask what percentage of students, approximately, have signed that petition?

The PRESIDENT: I will pass it round, and then you can look at it.

Presentations to the Library.

The SECRETARY reported that the following presentations had been made to the library:—"The Lambing Pen," by H. Leeney; THE VETERINARY JOURNAL, *The Veterinarian, The Journal of Comparative Pathology and Therapeutics*, by the editors; the Calendar of the Pharmaceutical Society, and the Calendar of the College of Preceptors. He also reported that Mr. Kidd had presented to the museum a specimen of a fractured acetabulum.

On the motion of Mr. WRAGG, seconded by Mr. HARTLEY, a vote of thanks was accorded to the donors.

Finance Committee.

The SECRETARY read a report of the Finance Committee, which, on the motion of Mr. FRASER, seconded by Mr. WRAGG, was received and adopted, and cheques were ordered to be drawn to meet the liabilities.

Registration Committee.

Mr. SIMPSON, as chairman, read the report of the Registration Committee, and moved its adoption.

The report stated that there had been two prosecutions against persons for using the words, "Shoeing Forge." Convictions were obtained, and a fine of 10s., with costs, in each case had been inflicted. The committee recommended a prosecution against a person using the words, "Veterinary Farrier, and Horse and Cow Doctor." Several cases of advertising had been considered, but in all of them undertakings and satisfactory explanations had been given. The committee had had before it the case of a member of the college who was struck off the Register, but who held the diploma of the Highland Agricultural Society, and they were in communication with that society as to whether or not the society had power to forfeit the diploma. The society was consulting its legal advisers, and the matter was still pending. The committee recommended the following resolution for adoption by the Council:—"That, in the opinion of this committee, the calling of a quack medicine vendor is one which should not be exercised by any veterinary surgeon, and its pursuit should be included under the head of 'conduct disgraceful in a professional respect.'" The committee recommended that the names of Mr. James Sheehy, J. T. Porter Carter, W. Gatwood, J. M. Stevenson, and Joseph Mason be restored to the Register on the payment of the usual fee.

Professor PRITCHARD seconded the motion for the adoption of the report, which was agreed to.

Examination Committee.

Mr. MULVEY, as chairman, read the report of the examination committee, and moved its adoption.

The report recommended that effective steps should be taken to give greater space between the students at the written examinations. The committee had examined the educational certificates for the May examination, and passed those which they considered had complied with the bye-law, rejecting those which had not. On three certificates they reported that some doubt existed, and the matter was referred to the chairman of the committee and the solicitor. The committee had had under their consideration the application of Miss Custance, she having produced the necessary educational certificate for admission to the first professional examination, but they did not consider they had power to admit women to that examination, and had referred the matter to the solicitor. The receipt of a letter was reported from the Privy Council as to the recognition of the degrees of Italian veterinary surgeons, and the solicitor had been requested to draft a letter in reply, to be submitted to the Council.

Mr. HARTLEY seconded the motion for the adoption of the report.

Professor W. O. WILLIAMS: I should like to ask for the solicitor's report with regard to the admission of women.

Mr. THATCHER then read the report as follows:—"Section 4 of the Veterinary Surgeons' Act, 1881, states, The Royal College of Veterinary Surgeons shall be bound to make provision in the manner permitted by their charters for the examination in England of the students attending the Royal Veterinary College, and in Scotland of the students attending the several Scotch veterinary colleges, and in Ireland whenever a veterinary college shall be established in that country, and to admit and register such students as have passed the examination as members of the said Royal College under the provisions of such charters and this Act." The persons who, according to the charter of 1844, are entitled to be admitted are, in addition to those there stated, "Such other persons as respectively now are, or hereafter may

become students of the colleges (named), or which shall be established for the purpose of education in veterinary surgery, whether in London or elsewhere in our United Kingdom, and which we, or our royal successors, shall under our or their sign manual authorise in that behalf, and shall pass such examination as may be required by the orders, rules, and bye-laws, which shall be framed and confirmed pursuant to these presents." The latter part of the charter gives the Council power to make bye-laws with regard to the time, place, and manner of examining the students who shall have been educated at the colleges mentioned, and who may be desirous to become members of the said body, politic or corporate. It will be observed that in the Act and charters the word "students" is used, a word common to both sexes. It is true that in other portions of the Act such words as "him" and "his" are used, implying the masculine gender, but according to the Interpretation Act, section 1, sub-section 1, every Act after 1850 containing words imparting the masculine gender shall include females. It should be remembered that Miss Custance has complied with such rules and bye-laws, and has passed such an examination as would, in the case of a male student, admit to first professional examination. At first sight it would appear, therefore, that she would be entitled to enter. The question, therefore, to be decided is whether, having regard to the fact that the charter was passed fifty-three years ago, and that up to the present time no female has been admitted to membership, usage will now preclude her. There have been two cases on this point of a somewhat analagous nature, namely, Chorlton *v.* Lings, L.R., c. 4, p. 474, which precluded women from exercising the franchise, notwithstanding the word used in the Act was common to both sexes. This was followed and confirmed by the Court of Appeal in the case of Beresford Hope *v.* Sandhurst, 23 Q.B., 79, in which a female was declared to be ineligible to be a member of the county council, notwithstanding the fact that the words were common to both sexes, and that the Act allowed women to vote in the election. I should have liked longer time to look into the matter, but my opinion upon the present materials before me is that usage prevails, and that Miss Custance cannot be admitted; but the point is one of such importance that I put this view with great diffidence, and would respectfully submit that a case should be laid before the standing counsel of the College and his opinion be taken and acted upon.

Mr. MULVEY: The question is undoubtedly one of very great importance, and I therefore move that counsel's opinion be taken on the matter and acted upon.

Mr. DOLLAR seconded the motion.

Professor W. O. WILLIAMS: If counsel's opinion is taken on this case, I would request that it be taken at once, as Miss Custance proposes to go in for her first professional examination next month.

Mr. THATCHER: I will undertake to have the opinion obtained as soon as possible.

Professor PRITCHARD: What would counsel's opinion fee be?

Mr. THATCHER: Two guineas.

Professor PRITCHARD: Then I do not think the game is worth the candle, and I should let Miss Custance go in for the examination.

Professor W. O. WILLIAMS: I should like to ask if Mr. Thatcher has taken any notice of women being admitted to the medical profession, and if the medical profession have not a special clause, and if usage was not brought in, or why it was not brought in in connection with that body? Miss Custance has been two years at college on the thorough understanding that she could go up for her first professional examination. She forwarded divided

certificates, which were refused, and she then went in for the preliminary and passed. The certificates have been accepted and sent back again.

Mr. THATCHER: Her certificate at the present moment is perfectly in order.

Professor W. O. WILLIAMS: She sent a certificate up before which was divided, and which was discussed, and no intimation was given to her that the Council was going to consider the matter a week or two before the examination. This is springing the thing very suddenly, indeed, upon her. A good many members of the Council knew a year ago that Miss Custance was going up for the examination.

Mr. MULVEY: Perhaps you will allow me to explain that as chairman of the examination committee, I had no idea whatever that the name of Custance which appeared was that of a woman.

Mr. THATCHER: Do you wish for an answer, Professor Williams, as to why women are admitted into the medical profession?

Professor W. O. WILLIAMS: I cannot see how you reason.

Mr. THATCHER: I can only go upon our own Act and Charters (I cannot go outside those) and upon the decided cases. There may have been special provisions in the medical charters which I know nothing about. The medical profession were guided by their legal advisers, and I can only tell you my opinion.

Professor WILLIAMS: I thought, perhaps, that would be a good guide. When the Council seemed to take the medical profession as a guide with reference to the preliminary examinations, I thought we might continue to follow the medical profession in this matter.

Vet.-Col. LAMBERT: As this is one of the most important things ever brought up before the Council since I have had anything to do with it, may I ask whether the opinion of the standing counsel of the college is final and binding as far as our action goes.

The PRESIDENT: That is the resolution—that we act upon it.

Vet.-Col. LAMBERT: I mean, supposing he gives an opinion adverse to Miss Custance, is it to be acted upon without any reference to the Council at all? Is the Council bound to be satisfied with that opinion?

The PRESIDENT: We must decide that matter to-day, as Miss Custance goes up for examination if counsel's opinion is in her favour.

General Sir FREDK. FITZWYGRAM: In Parliament the universal rule is that the word "person" covers the female sex, unless the context shows it to be obviously otherwise. Parliament has entirely given up using "she" and "he." If you will turn to the Local Government Bill, which is a recent example, you will find that the word "person" is used and intended to cover both sexes.

Mr. BARRETT: I suggest that it would be desirable for the examination committee to have an opportunity of discussing counsel's opinion, inasmuch as these opinions are not always quite clear. In the event of any ambiguity arising, it is advisable that the examination committee should have an opportunity of considering the matter.

Professor W. O. WILLIAMS: I beg to propose as an amendment that Miss Custance be permitted to go up for her first professional examination at the forthcoming examination.

Professor PRITCHARD: I will second that.

The PRESIDENT: If that is carried counsel's opinion will not be wanted.

Mr. DOLLAR: I should like to point out the one course binds us to nothing, while the other course establishes a precedent.

The PRESIDENT: We all understand that. If you accept the amendment we simply establish a precedent, and we do not take counsel's opinion.

The amendment was then put and lost, and the original motion as proposed by Mr. Mulvey, was agreed to.

The PRESIDENT : Before putting the motion for the adoption of the Examination Committee's report, I think you had better hear the letter from the Privy Council *re* the recognition of degrees obtained at Italian Universities by Italian subjects.

Mr. MULVEY then read the letter from the Privy Council, which contained a request from the Italian Ambassador that his Government might be furnished with particulars in regard to the formalities necessary in this country for the recognition of degrees obtained at Italian Universities by Italian subjects.

The reply drawn up by the solicitor to the foregoing communication stated that, "The recognition of a foreign practitioner in the Register of Veterinary Surgeons is regulated by section 13, sub-sections 2, 3, and 4 of the Veterinary Surgeons' Act, 1881, and bye-laws 108 and 109. The proper course to be pursued by a gentleman who holds the diploma of an Italian college, and seeks to be registered in the Royal College, is to lodge such diploma here, together with a properly authenticated syllabus of the curriculum and examinations of the College where the same was obtained, and if, on examination, it appears that such diploma complies with sub-section 3 of section 13, the holder will be entitled to registration on payment of the fee provided by the bye-law"

The motion for the adoption of the report was then put and agreed to.

Parliamentary and General Purposes Committee.

The SECRETARY read the report, from which it appeared that, with regard to the letter from Mr. Hunting, with reference to the Veterinary Department of the Board of Agriculture, after full consideration and discussion, the Committee recommended that no steps should be taken by the Council upon the suggestions offered by Mr. Hunting. The Committee also reported that it approved of the petition to Government for the exemption of veterinary surgeons from serving on juries. They considered, however, that under the existing circumstances it would not be expedient to present it at the present time, but that they had better wait until the law relating to juries was again under the consideration of the Government. A circular letter had been sent out to every member of Parliament calling his attention to the desired amendment in the Public Health (Scotland) Bill ; and also to every member of the College, asking them to use their influence with their local members. The Committee also reported that through the agency of the President of the Board of Agriculture, Mr. Simpson had obtained an appointment to see the Lord Advocate, who was in charge of the Bill.

Professor PENBERTHY: I beg to move the adopting of this report, and in so doing I should like to say with regard to Mr. Hunting's letter, that this action, or inaction, has been decided upon in accordance with the express wish of that gentleman. Without that explanation it might appear that we were not dealing with the letter in the proper spirit. I have received another letter from Mr. Hunting saying that he has had an interview with Mr. Long, and that he found it was impossible to get what he wished from that gentleman ; in fact, the general tenor of his letter was that we had better not move any further in the matter at present.

Mr. MULVEY seconded the motion for the adoption of the report, which, with a slight verbal alteration, was agreed to.

Dates of Examinations.

On the motion of Professor W. O. WILLIAMS, seconded by Professor DEWAR, it was resolved that the written examination in Scotland be held on

Friday, the 14th of May, and that the oral examination commence on Tuesday, the 18th.

On the motion of Mr. ELPHICK, seconded by Professor DEWAR, it was resolved that the Fellowship Examination be held in London on the 14th, and, if necessary, the 15th of May.

On the motion of Mr. ELPHICK, seconded by Professor MCFADYEAN, it was resolved that the Written Examination commence in London on Friday, the 9th, and the Oral on Tuesday, the 13th of July.

Appointment of Scrutineers.

Professor PRITCHARD proposed that the same gentlemen who were appointed scrutineers on the last occasion be requested to act this year.

Mr. SIMPSON seconded the motion, which was carried.

Arrangement for the Annual Report.

On the motion of Mr. HARTLEY, seconded by Mr. DOLLAR, it was resolved that the arrangement of the Annual Report be referred to the Publication Committee.

Notices of Motion.

Mr. MULVEY: I beg to give notice of a resolution standing in my name:—

Alteration of Bye-law 67. To leave out the words, 'His first, second, or third,' and substitute, 'any professional.'

Mr. DOLLAR gave notice of his intention to move:—

> That in case of each and every person summoned by the Registration Committee of the Royal College of Veterinary Surgeons to defend a charge of "conduct disgraceful to him in a professional respect" who shall enter a defence, a full report of the charge and of the defence, whether delivered in writing or by word of mouth, shall be kept by the Secretary of the Royal College of Veterinary Surgeons, and that in the event of the Council of the Royal College of Veterinary Surgons directing the name of the said person to be removed from the Register, such report shall be published in the professional journals not more than three nor less than two months after the date of such direction, except in the event of the said person waiving his right to appeal to the Privy Council, when the report shall be published on receipt of notice from him to that effect.

Or alternatively—

> That on receipt of notice from the person charged with "conduct disgraceful to him in a professional respect," ten clear days prior to the date fixed for his appearing before the Registration Committee, to the effect that he desires to be heard in open court, the President or Chairman of the Registration Committee shall fix an hour for such hearing and shall transmit to the professional journals notice thereof, whereupon any members of the profession, to a number not exceeding twenty, shall on personal application at the time named be admitted to hear the trial of such charge.

The following notice of motion also stood in Mr. Dollar's name:—

"That no member of the Registration Committee or of the Council, who shall have made complaint to the said Committee or Council, of a Member or Fellow of the Royal College of Veterinary Surgeons having been guilty of conduct disgraceful to him in a professional respect, shall vote on the motion to remove from the Register the name of such Member of Fellow, or to inflict other penalty."

Motion by Mr. Dollar.

On the motion of Mr. DOLLAR, the following names were added to the list of Honorary and Foreign Associates of the Royal College of Veterinary Surgeons:—

Professor Bayer, Director, Royal Vienna Veterinary College.

Professor Cadiot, Professor of Surgery, Alfort Veterinary College.

Professor Dr. Franz Friedberger, Royal Veterinary College, Munich.
Professor Dr. Eugen Fröhner, Royal Veterinary College, Berlin.
Professor Dr. H. Möller, late Royal Veterinary College, Berlin.
Professor Trasbot, Director, Veterinary College, Alfort.
Professor Hess, Director, Veterinary College, Berne.
Professor Th. Kitt, Royal Veterinary College, Munich.

Notice of Motion by Professor McFadyean.

Professor McFADYEAN gave notice of his intention to move in due course, "That the name of Professor Ghone be added to the list of Honorary and Foreign Associates just elected."

Her Majesty's Diamond Jubilee.

On the motion of Mr. SIMPSON, seconded by Vet.-Col. LAMBERT, it was resolved that a loyal address, with the seal of the College affixed, be drawn up by the Publication Committee and presented to the Queen on the occasion of Her Majesty's Diamond Jubilee.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE annual meeting took place at the Grand Hotel, Birmingham, on the afternoon of Friday, February 19th. Mr. F. L. Gooch (Stamford) presided, and there were also present—Professor McFadyean, Sir Henry Simpson, Messrs. R. C. Trigger, John Blakeway, T. L. Barber, H. L. Pemberton, G. Wartnaby, J. Malcolm, J. Burchnall, T. Slipper, Captain Marriott, J. Mulvey, J. Whyte, H. Kidd, H. M. Stanley, T. Horton, F. W. Barling, W. S. Carless, F. W. Wragg, W. Hunting, W. H. Brooke, E. Beddard, G. Prickett, A. Green, A. B. Forsyth, F. J. Taylor, H. Collett, M. Sadler, H. J. Dawes, Hon. Secretary. Visitors :—Messrs. Challen, Wolstenholme, Byner, Woods, Smith, Pearce, etc.

Apologies

Either by letter or telegram were received from the following :—Professors Williams and Penberthy, Messrs. W. Carless, Bainbridge, Reynolds, Green, Mason, Over, Blunt, J. L. Baring, Merrick, Woolston, Grasby, Hodgkins, Hobson, Jones, Russell, J. F. Simpson, Faulkner, Gold, Gibbings, Sir James Sawyer, Spencer, etc.

Nominations and Election.

The opening formalities (including the reading of the circular convening the meeting, and the reading and adoption of the minutes of the previous meeting) having been duly observed, Mr. H. J. DAWES, Hon. Secretary, on behalf of Mr. Trevor Spencer, nominated for membership of the Association, Mr. W. A. Stanway, of 55, Merridale Road, Wolverhampton; and Mr. H. M. STANLEY nominated his partner, Mr. C. J. Byner, of Birmingham.

The above names will, according to rule, be submitted for election at next meeting.

Mr. T. H. Hobson, F.R.C.V.S., of Leicester, duly nominated at the previous meeting, was elected a member of the Association, on the proposition of Mr. H. J. DAWES, seconded by Mr. BARBER.

Treasurer's Report.

The annual financial statement of the Hon. Treasurer (Mr. John Blakeway) was received, and showed the balance at the bank, on January 1st, 1896, to have been £109 9s.; subscriptions and entrance fees during 1896, £56 10s.; and bank interest during the year, £3 6s. 5d, making the total received during the year £169 5s. 5d. The expenditure had been—Secretary's disbursements

£21 4s. 3d.; Treasurer's disbursements, 17s. 7d.; and donation to the Walley Memorial, £10 10s.; leaving a balance at the bank on December 31st, 1896, of £136 13s. 7d.

Mr. BLAKEWAY said the accounts had been audited by Messrs. Trigger and Malcolm, in the temporary absence of Messrs. Stanley and Olver, the auditors duly appointed, and had been found correct. He was pleased to say there were very few gentlemen in arrears. They had now 94 members and 11 honorary associates. During the year there had been four resignations. and they had lost two members by death. There had also been three removed from the membership roll by resolution, and three new members had been struck off for non-payment of entrance fees. He thought they were in a very satisfactory state.

On the motion of Mr. WARTNABY, seconded by Mr. W. S. CARLESS, the balance-sheet was unanimously adopted.

A Resignation.

Mr. BLAKEWAY read a letter he had received from Mr. W. C. Barling, of the Paddocks, Newnham-on-Severn, Gloucestershire, enclosing his subscription up to date, and requesting him to tender his resignation as a member of the Association, on the ground that the meetings always seemed to be held on days inconvenient to him. Mr. Blakeway said that although they had not the pleasure of seeing Mr. Barling amongst them often, they would regret losing him. He only wished some member would persuade him to reconsider his decision.

Election of Officers.

The PRESIDENT said it was a long standing custom amongst them for the retiring occupant of the chair to nominate his successor. That being the case, he had much pleasure in proposing that Mr. W. Stanley Carless, of Worcester, be President of this Association for the ensuing year. In Mr. Carless he felt sure they would have a gentleman well worthy to preside over the deliberations of this important Association. Mr. Carless, moreover, was one of their oldest members, and a most regular attendant at their meetings.

Mr. WRAGG had great pleasure in seconding.

The motion was carried with applause. Mr. Carless will assume office at the next meeting.

The retiring president is, *ex-officio*, a vice-president, and Mr. TRIGGER proposed that the two others be Messrs. Burchnall and Pemberton.

This was seconded by Mr. WARTNABY and carried.

Mr. MALCOLM moved the re-election of Mr. John Blakeway as hon. treasurer. The accounts had been in that gentleman's hands for some years, and he had kept them very satisfactorily.

Mr. W. S. CARLESS seconded the motion, which was carried unanimously.

Mr. W. S. CARLESS said he had very great pleasure in proposing the re-election of Mr. H. J. Dawes as hon. sec. He hoped Mr. Dawes would accept the office, as during his presidency he should look forward to his valuable help.

Mr. BARBER seconded, and

The PRESIDENT said he should like to support the motion for the purpose of enabling him to testify to the very able manner in which Mr. Dawes had discharged his duties during the past year.

The motion was then carried unanimously.

On the motion of the HON. SEC., seconded by Mr. JOHN BLAKEWAY (hon. treasurer), Messrs. Trigger and Malcolm were elected auditors for the ensuing year.

Mr. TRIGGER moved that the best thanks of the Association be given to the officers for their services during the past twelve months. They had found Mr. Gooch to be a most courteous and attentive chairman, and he was also pleased to see that both Messrs. Blakeway and Dawes had consented to act once more as treasurer and secretary respectively.

Mr. A. GREEN, in seconding, expressed the hope that next year would pass off as pleasantly under Mr. Carless as last year had under Mr. Gooch.

The vote of thanks was very heartily accorded.

The PRESIDENT, in response, said he had done his best during his tenure of office to enhance the merits of the Association, and if he had succeeded, he should consider himself amply repaid for any trouble he had been put to in the matter.

The other officers also responded.

A Notice of Motion.

The HON. SEC. drew attention to a matter which, he said, had long caused him a certain amount of trouble and anxiety. Certain members, when they borrowed the instruments of the Association, kept them an unreasonable length of time, and when other members happened to apply to him for the same instruments, they were kept waiting. He begged to give notice that at the next meeting he should move that a new rule be drawn up prohibiting members borrowing the instruments of the Association for a longer period than seven days.

Glanders.

The HON. SEC. read a circular letter from the West of Scotland Veterinary Association, asking this Association to support a resolution they had passed in favour of mallein in cases of glanders, and requesting the Board of Agriculture to give owners compensation when any affected animals were slaughtered.

Mr. HUNTING suggested that this Association might with propriety pass some resolution on the subject, but not the one which had come from Scotland. He approved of mallein himself, but did not see the wisdom of altering the whole legislation on the subject by requesting the Board of Agriculture to make compensation for slaughtered animals out of the Imperial taxes, which would necessitate the passing of another Act of Parliament.

The PRESIDENT: Will you, Mr. Hunting, move a resolution on the subject?

Mr. HUNTING: With pleasure, Mr. President. I will move the following:—"That this Association inform the West of Scotland Veterinary Medical Association, in reply to their communication, that they are in agreement with them, so far as the action of mallein goes, and that they look upon it as an extremely sure test of the existence or non-existence of glanders, but this Association are not prepared to support their proposal to approach the Board of Agriculture on the subject."

Mr. WRAGG seconded this resolution, which was carried unanimously.

Professor MCFADYEAN here read a paper on "The Progress of the Profession: a Retrospect and a Forecast":—

The history of the veterinary profession in Great Britain covers a period of only 106 years. The natal year of the science was 1791, when the Royal Veterinary College was founded. This period of 106 years, in any attempt to trace the development of the profession, falls very naturally into two equal intervals divided by the year 1844, when the Royal College of Veterinary Surgeons was incorporated by the Royal Charter. During the first 53 years after the foundation of the R.V.C. that institution discharged the double function of teaching and examining those who desired to practise the veter-

inary art in England, and from 1826 to 1844 a like part was played in Scotland by the College founded by Prof. Dick. Since 1844 the duties of teaching and examining have been divided, the latter function having been committed to the R.C.V.S. by its charter of incorporation.

The following account of Sainbel's advent in England, and his efforts to introduce some knowledge of veterinary art, is from "Elements of Farriery:"—

Being superseded in a promotion which he had a right to expect, through the then Master of the Horse to the then King of France, he resolved to come over to England, and to pass some time in observing the state of rural economy in this country, in examining the different breeds of cattle, and especially horses; in a word, whatever had any relation to the principle objects of his favourite profession. He communicated his design to M. Broussonet, M.D., Perpetual Secretary to the Royal Society of Agriculture in Paris, and Fellow of the Royal Society of London. His reply to him was remarkable. He told him that if he went to England with the above intentions he would be astonished at the beauty and value of the domestic animals of all kinds, and that he would find agriculture in the highest state of perfection; but that he would find the veterinary art totally neglected. But, he added, that if he were inclined to risk some proposals for improving the art, he would almost undertake to answer for their being well received. He gave me letters of recommendation to Sir Joseph Banks, Bart., and to Dr. Simmons. Thus encouraged he came to England in June, 1788. Two months after his arrival in London he published proposals for forming a veterinary school, but they produced no effect. This disappointment, however, did not destroy his hopes, for in the month of October, 1789, he published fresh proposals to read lectures on the veterinary art. These proposals met with no better success, and he confesses this second disappointment nearly disheartened him. He endeavoured to trace the secret causes which so stubbornly resisted his success, and he soon perceived that the opulence and mild government of England offered an endless field to foreign adventurers of every description, by whom the nation was daily imposed upon; and that repeated experience of such impositions must naturally excite mistrust towards foreigners in general, and as the honesty of his views was not written in his face, patience and perseverance became his only resource. About this time he had the good fortune to become acquainted with a gentleman who was led, by a decided taste for the art, and a long desire of seeing it introduced into his own country, to engage in frequent discussions with him on the subject; he made him acquainted with the whole of his plans, and of the little encouragement he had met with. The gentleman eagerly corresponded to his views, and bid him not despair of success, assuring him that by persisting in his proposals the reason of the thing would, sooner or later, carry the victory. He had also the friendship to give him particular assistance in drawing up proposals, better adopted to the genius and custom of the nation, which represented in an able manner the advantage of studying the veterinary art; these proposals were distributed in May, 1790, and consisted of 28 pages in octavo, entitled "Plan for establishing an institution to cultivate and teach veterinary medicine." He carried several of them to Newmarket, where they were well received, and he brought back the names of a few subscribers.

About the end of May he sent several copies to the societies at Odiham, Bath, and Manchester. The former society had, sometime before, proposed to send two pupils annually to study in the schools of France, and had opened a fund for the improvement of farriery. On the receipt of his plan, they did him the honour to pass a resolution of approbation and to elect him an honorary member of their society, and they expressed their opinion of the expediency of establishing an institute similar to those in France, Germany, etc. He added a few names to his subscribers and deferred taking any further step till the following winter. During this interval the Odiham Society proposed a premium for the best treatise on glanders, and appointed a committee to meet at the Blenheim Coffee-house to consider of the best methods of improving farriery.

This committee met in the close of the year 1790, two treatises only were presented, one by their zealous and respectable vice-president, the late Sir William Fordyce, and the other by Sainbel. Several meetings took place without anything very effectual being done, till at length, in one of those meetings the committee passed a resolution to the following purpose. That they had observed the good effect produced on the public mind by the exertions of the Odiham Society for the improvement of farriery, and by his plan proposed for establishing a public institution for that purpose; that the object of that society was one and the same with that contained in his plan, and that the two schemes ought to be consolidated into one. This was done, and he was appointed professor. A few days after the committee, by another resolution, detached themselves entirely from

the Odiham Society, and erected themselves into an independent society (assigning the reasons for taking that step) by the name of the Veterinary College, London.

Sainbel died in 1793, and Coleman succeeded.

Soon after the foundation of the College as a lecturing institution a board was constituted for the purpose of examining its pupils and granting certificates to those who were considered competent to practise as veterinary surgeons. This body was composed exclusively of members of the medical profession, and it was called the Medical Committee. The minute book of this committee is preserved in the R.V.C., and the first entry in it is as follows :—

"At a meeting of the Medical Committee held at the Crown and Anchor Tavern, Strand, on Thursday, June 1st, 1797. Present: Doctor Fordyce, Mr. Coleman. Adjourned till Monday, the 12th instant, for want of a sufficient number of gentlemen to proceed to business."

The minutes of the 12th June, 1797, record that a meeting was held at the same place. Present:—Henry Cline, Esq. (in the chair), Dr. Babington, J. Abernethy, Esq., A. Cooper, Esq., Dr. Fordyce, W. Horlston, and Mr. Coleman, and that three pupils were examined and two received certificates, viz., Henry Parkenson, after twenty months' residence, and Boardman (first name not recorded), now resident eight months. The names of the gentlemen who ought to head the historic roll of rejected candidates is, unfortunately, not recorded. This ignorance, from the present-day standpoint, may with difficulty be imagined, especially in view of the fact that it was not till the 20th meeting afterwards, on the 28th December, 1799, that the second candidate was rejected. It is interesting to note that the name of Mr. William Sewell is entered in the minutes of a meeting held on the 30th March, 1799, as having received a certificate along with three other candidates. Three years later, viz., in 1802, Mr. Sewell was appointed assistant professor, and in 1839 he succeeded Coleman as president.

Upon what subjects the students were examined at this period, how the work of examining was sub-divided among the members of the Board, or how long the examination of a candidate lasted, are matters not recorded in the minutes, but in an entry in the year 1798 it is recorded that John Brown Stanley was examined—part on the 24th April, and that his further examination was deferred till the 28th March, owing to the lateness of the hour.

Very considerable interest attaches to the following letter, dated 24th April, 1829, of which the original is preserved in the minute-book:—

"My dear Sir,—Will you have the kindness to inform me when the next meeting of examiners will be held, as it is my intention, should my health, not at present too good, permit, to present myself before them as a candidate for a diploma.—I have the honour to be, my dear sir, your obedient servant W. YOUATT."

This intention, it appears, was not fulfilled until fifteen years later, viz., the 15th May, 1844, when at the second meeting of the first board appointed by the recently incorporated R.C.V.S. Mr. Youatt was allowed to present himself prior to the examination of the students in waiting, and was awarded his diploma.

The period of attendance necessary to qualify candidates for examination, if specified at this time, must have been very short. The periods entered opposite the names vary from three months to three years. Up to the 30th June, 1809, the examinations continued to be held at the Crown and Anchor, but on and after the 31st July of that year the committee met at the Freemasons' Tavern.

The minute book also contained the treasurer's account, from which it appeared that each candidate had to pay an examination fee of £3 3s., while

the examiner's fee seems to have depended on the number of examiners present. Thus seven members on one occasion received one guinea each, and on another three examiners divided £7 17s. 6d. between them,

In the year 1840 a number of veterinary surgeons formed themselves into a "veterinary committee" to take means to obtain a Charter of Incorporation. Their efforts were continued until they were crowned with success in March, 1844.

The first meeting of the newly incorporated body was held at the Freemasons' Tavern on the 12th of April, 1844, and the first Council meeting three days later. At the Council meeting a "mixed temporary board" of examiners was appointed; it included thirty members, nearly one half of them being members of the medical profession, and the remainder veterinary surgeons. The examination fee payable by students was fixed at £3 3s.

The Board held its first diet on the 8th of May, 1844, and the first candidate was Mr. Morton, the lecturer on chemistry at the R.V.C. At the very first meeting of the Board unpleasant relationship between the examiners aud the teachers at the R.V.C. would appear to have been established owing to the veterinary members of the new Board objecting to the presence of any of the professors of the College. As soon as the Charter of Incorporation was granted the examining committee of the R.V.C. were dissolved, but apparently some members of the profession were not content with this, but held that the wording of the Charter forbade even the presence of the teachers at the examination. The clause which was interpreted in this sense runs: "That no professor of any or either of the Colleges as aforesaid, of which the person desirous of becoming a member of the said body, politic and corporate, shall have been a student shall in any way or manner act or interfere as the examiner of such person." The fact that this was held by the veterinary examiners to mean that the professors were to be excluded from the examinations is sufficient testimony to the soreness which the long retained monopoly of examining by the R.V.C. had engendered among the outside members of the profession. And it may be observed in passing that the professors of the R.V.C. maintained that while they were petitioners for the Charter, the clause depriving them of the right to act as examiners was smuggled into the Charter without their knowlege or consent.

Early in 1845 the Council appointed a regular Board of Examiners, comprising two sections, one for England, and one for Scotland, with ten members in each. Eight of the twenty were members of the medical profession and the remainder veterinary surgeons. The teachers in the R.V.C. and Professor Dick in Scotland were declared *ex-officio* members of the Board. Early in 1845 the Council also drew up its first code of bye-laws. These ordained that each candidate for the diploma:—

1. Must be 21 years of age.
2. On and after January, 1848, must have served a three years pupilage with a M.R.C.V.S.
3. Have attended two sessional years at one of the veterinary colleges. Subjects: *(a)* Anatomy, physiology, pathology of the horse and other domesticated animals; *(b)* veterinary medicine and surgery; *(c)* chemistry, mat. medica, and pharmacy.
4. Have dissected diligently during his pupilage at the College.
5. Present a certificate from the professor at the College or a M.R.C.V.S. stating that he was "able to take off and put on a shoe, to drive the nails skilfully, pare out a foot, and search for its diseases."

The temporary Board appointed in 1844 followed the plan of examining pursued by the old veterinary committee. Under this plan only two or three of the examiners took a pupil and questioned on the whole subjects of the examination. The permanent Board, however, were divided into four tables, viz. (1) chemistry; (2) anatomy and physiology; (3) pathology of the horse; (4) cattle pathology. Quarter of an hour at each table.

In 1847-48 the Council set about a revision of its bye-laws, but the only alteration of note relating to the examinations was that in lieu of the apprenticeship of two years the candidate might attend two additional years, or four in all, at a veterinary college.

In 1848 an incident occurred which, in some of its features, strongly recalls one of much more recent date. At the Council meeting held on the 19th April, 1848, the President said that he had before him a memorial from twenty-two of the students of the R.V.C. praying to be relieved from the position in which they were placed in regard to not being able to produce indentures of apprenticeship, and also complaining that they had not been fully informed at the period of their entrance as students of what would be required from them in order to qualify for examination. To this petition the Council gave effect by suspending the pupilage bye-law for the remainder of that session, and the suspension was continued during the succeeding session.

In January, 1851, the Council entirely remodelled its bye-laws. One of them ordained that the Court of Examiners should meet twice at least in every year, viz., at the termination of the session of either school, and in December. The constitution of the Board of Examiners was left unchanged, but the examination fee was raised to £10 10s. The pupilage bye-law was omitted, and the only qualification required for examination was a "certificate or other legal proof as may be required of the candidates having been educated at one of the recognised colleges or schools."

This omission of the bye-laws defining the period of attendance at a college, and requiring a certificate of pupilage, appears to have been due to doubt as to whether the charter gave the power to do either of these things. The Court of Examiners were divided into four tables as before, save that table four included the anatomy and physiology as well as the pathology of the ox and other domestic animals.

(Bill of Exemption from Juries lost in 1852.)

In 1856 the examination fee was reduced to £7 7s., and the Council resolved to remodel the Scotch section of the Board of Examiners, and consult Professor Dick as to the new appointments. During all this time the old Board of the H. and A.S. had continued to hold its examinations and to grant its certificates or diplomas, and this remodelling of the Board apparently was intended to pave the way for the dissolution of the Highland Board. To that end also it was resolved to take steps to admit into the corporate body those persons who had previously paased the Highland Board.

In 1859 expressions of discontent with the nature and extent of the examinations were expressed at the annual meeting.

At the annual meeting in 1864, Professor Gamgee advocated the addition of natural history (to include botany, zoology, and geology) to the subjects of study for examinations.

In 1867 the bye-law relating to the composition of the Examination Board was amended to read: "Twenty examiners shall be elected, and of these not less than twelve shall be members of the College, and the remaining eight *may be* non-members, eminent for their knowledge of medical science or chemistry."

In 1868 it was proposed by Professor Gamgee that an educational test, to include geography, mathematics, classics, or modern languages, should be introduced, but that the examinations on these subjects should be held, not before entrance, but at the end of the first summer session.

In 1869 a committee of the Council had under consideration the insufficiency of the professional examination, and made various recommendations for its improvement. The Council agreed to the recommendation that the examinations should be written, oral, and practical, but did not pass a bye-law. During the next two years attention continued to be given to this subject, as well as to the desirability of the schools exacting some evidence of general

education on entrance. Apparently as a result of this, a preliminary examination was instituted by the schools, but the test was of a very elementary character. It can hardly be said to have done more than exclude those who were unable to read or write their own language.

In 1871 the Council entered into communication with the schools, with a view to arranging for the holding of a practical examination, but to the proposal much opposition was offered by the teachers, on the ground that there were insurmountable difficulties in the way of carrying out an examination that would be really practical. Such an examination was introduced in the following year, but it was held external to the R.V.C.

The annual report for 1892 records that the R.V.C. had decided to have a summer session. In the following year the Council again revised its bye-laws. Among other changes these provided for three examinations in the year, viz., in April, July and December, and divided the professional examination into two parts, the first part to be taken after attendance for one winter and one summer session, and the second at the end of a winter session's attendance after passing the first examination. The minimum period of attendance was thus extended by a summer session.

The first examination was to include three tables, one for anatomy and histology, one for mat. medica, therapeutics and botany, and one for chemistry and toxicology. Twenty minutes at each table.

The second examination had also three tables, viz., one for physiology, pathology, and morbid anatomy, one for veterinary surgery, to include external diseases of the domesticated animals, and one for veterinary medicine. Twenty minutes at each table. The second examination was also to include the principles of shoeing and the practical details of the profession. The Governors of the R.V.C. offered facilities for the conduct of the practical.

Very important changes in the curriculum were introduced in 1876. The sessional year was divided into three terms, winter of not less than three months, and each of a summer term of not less than two months. A winter and a summer session were added to the minimum period of study, and a third professional examination was introduced. To qualify for the first examination a student had to attend three terms (a winter and a summer session), for the second examination he had to attend two terms (a winter session), and for the third three terms (a winter and a summer session).

The subjects for the first examination were mat. medica, pharmacy, botany, chemistry and toxicology.

2nd Examination: Anatomy, physiology, and histology.

3rd Examination: Morbid anatomy and pathology, diseases of the horse, medical and surgical, and diseases of other domesticated animals.

The 3rd examination was to comprise a theoretical and a practical portion.

The 1st examination was conducted at three tables, the 2nd at two, and the 3rd at three, with two examiners at each table except in the 2nd examination, in which there was only one examiner at each table.

This addition of a third year to the curriculum was a very important step in advance, but it still left the student outweighted with subjects, especially during his first and his last year. The last examination under the two years system was held in January, 1880.

In 1879 the Council came to an agreement regarding the terms on which the Highland and Agricultural Society should cease holding its veterinary examinations. This was beyond doubt the most important transaction since the obtaining of the Charter of 1844. The existence of a second degree-granting body was an almost insuperable obstacle to the proper development of veterinary education, inasmuch as neither could lengthen the period of attendance or increase the severity of the examination without running great

risk of driving intending graduates to take the qualification obtainable on easier terms. Besides that the attitude of the H. and A.S., owing to a determination to protect its own graduates, had steadily and successfully opposed all attempts of the R.C.V.S. to protect the title of veterinary surgeon. For this attitude the H. and A. Society were not entirely to blame, for owing to a stupid jealousy on the part of certain members of the R.C.V.S., the Council for many years after 1844 continued to speak in very disrespectful terms of all those members of the profession who held only the H. and A.S. certificate, and refused to view them as duly qualified, or to allow that they were entitled to any exemption under an Act to protect the title of veterinary surgeon. It is not improbable that but for this unfortunate feeling of jealously, the Highland Board might have been dissolved twenty years earlier, in which case the profession would certainly have occupied a considerably better position than it does to-day.

The opposition of the H. and A.S. having been thus removed, the Council took steps to obtain an Act of Parliament to protect the title of veterinary surgeon, and in August, 1881, the Veterinary Surgeons Act was passed. This was an enactment of immense value, because it cleared the ground for the introduction of further much-needed improvements in the regulations relating to the education and examination of candidates for the diploma. The R.C.V.S. was now the only licensing veterinary body in the kingdom, and it had under its charter the power to raise the standard of its examinations to any degree, consonant with the interests of the general community.

In 1883, the Council for the first time framed bye-laws imposing on candidates for its diploma a bit of general education, and the regulations, to a certain extent, came into force in 1884. The candidate had to produce one of a list of specified educational certificates or pass an examination of a specified grade by the College of Preceptors in England, or the Educational Institute of Scotland, in Scotland. The subjects of this examination were English (reading, writing, parsing, composition), arithmetic, history, geography, and elementary Latin, French, or German. Those examinations were to be under the direction and supervision of the Council, but such supervision was never exercised, and there can be no doubt that the examination was even an easier task than it appeared to be.

In 1884 a separate set of examiners were appointed to conduct the practical part of the final examination, and in 1887 the theoretical and practical parts of the examination were still further separated by a bye-law which exempted a candidate, who passed the theoretical part, but failed in the practical part, from a further attendance at College.

In 1890 the bye-laws were amended, to the effect that the examinations should be conducted by a Board of Examiners under the direction and supervision of the R.C.V.S., to whom they shall report the result of the examination, which shall be uniform and applicable to the whole of the United Kingdom. This also was never carried into practice, the conduct of the examinations being left entirely unsupervised, and no report being made by the examiners to the Council.

In October, 1890, Professor Walley gave notice of a motion to extend the minimum period of study by at least three terms (one session), but this was subsequently withdrawn, owing to the small amount of favour which it appeared to meet with at the Council.

In 1892 a written examination was for the first time introduced, and in the following year a preliminary general knowledge examination, identical with that required in the case of medical students, came into force, while at the same time the minimum period of study was extended to a complete session, with a professional examination at the end of each.

(*To be continued.*)

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of the above was held at the Grand Hotel, Manchester, on Thursday, March 11th, 1897. Tea at 5. Business at 6 p.m. In the absence of the President, Mr. Wm. Dacre occupied the chair. The following members were also present:—Messrs. W. Hunting, J. Norbury, A. H. Darwell, S. Locke, W. A. Taylor, G. H. Locke, H. Ferguson, J. B. Wolstenholme, A. Munro, E. Faulkner, F. W. Hall, P. Gillespie, R. Ward, A. Lawson, H. B. Allen, J. C. L. Jones, J. McKenna, H. D. Chorlton, Hon. Sec., and Mr. Alfred Holburn, visitor.

The SECRETARY announced letters of apology for non-attendance from Professors McFadyean, Penberthy, W. O. Williams, and Mr. Hughes, of Oswestry.

Letters from Mr. M. H. Hayes tendering his resignation and from the Secretary of the Yorkshire Veterinary Medical Association respecting a special meeting at the Queen's Hotel, Leeds, March 12th, to discuss the Public Health (Scotland) Bill were laid upon the table.

The minutes of last meeting were taken as read, upon the proposition of Mr. WOLSTENHOLME, seconded by Mr. SAM. LOCKE.

Mr. GEO. HARRY LOCKE, M.R.C.V.S., was unanimously elected a member of the Association on the motion of Mr. DACRE, seconded by Mr. WOLSTENHOLME, and supported by Mr. W. A. TAYLOR.

Mr. WOLSTENHOLME nominated Mr. Alfred Holburn, M.R.C.V.S., Manchester, for membership.

Mr. SAM. LOCKE intimated his intention to bring forward at the next meeting the desirability of not making any charge for tea.

Mr. WOLSTENHOLME moved that the names of those who had not responded to his letter respecting arrears in subscriptions be expunged from the list of members of the Society.

Mr. DARWELL seconded the motion, which was carried unanimously.

The balance sheet was adopted on the proposition of Mr. E. FAULKNER, seconded by Mr. DARWELL.

Consideration of next election of members of Council R.C.V.S.

The SECRETARY having read the names of the retiring members of council this year, Mr. W. A. TAYLOR asked Mr. E. Faulkner, whose retirement was announced, to permit himself to be again nominated as candidate for Council. Those interested in the business connected with the Royal College would agree with him that Mr. Faulkner had not only paid great attention but had devoted considerable time and energy in the fulfilment of the duties attaching to a purely honorary officer. Having attended to the Society's interests during the past four years, Mr. Faulkner would be better able to represent them now than at his election four years ago.

Mr. SAM. LOCKE said he knew from observation that Mr. Faulkner had been of great use in the Council to the profession, therefore he could with much pleasure second Mr. Taylor's appeal, and he hoped Mr. Faulkner would accede to the wishes of the Society.

Mr. FAULKNER, while expressing his indebtedness to the proposer, seconder, and supporter of the motion that he should allow himself to be again nominated as the Society's candidate for the Council, regretted his inability to accede to their wishes. This was not because he had any personal desire to relinquish the position, but he felt he had duties at home which really called for the time required by a representative on the Council, who duly attended to the work.

Mr. W. A. TAYLOR: No one is more grieved than I to hear of Mr. Faulkner's determination to sever his connection with the Council. Until this moment I was unaware of his resolve, but I hope that on this occasion he will reconsider

his decision, and allow himself to be nominated, when we will endeavour to ensure his election.

Mr. DACRE, in putting the proposition to the meeting, remarked that if Mr. Faulkner retired from the Council his loss would be keenly felt by the Society.

Mr. FAULKNER said he was much obliged for their confidence, and they could rest assured that unless there had been some weighty reasons he should not have thwarted their wishes. He was even willing to make sacrifices, and in evidence of his appreciation of their vote he asked them to grant him a week to further consider the matter.

Mr. W. A. TAYLOR accepted Mr. Faulkner's proposal.

Mr. FERGUSON proposed that the usual election committee, consisting of the officers of the Society, be formed with power to add to their number.

Mr. DARWELL seconded the proposition, which was carried.

Mr. WOLSTENHOLME, touching upon Mr. Hunting's absence from the Council Chamber, said they would like to see him as a candidate this year, and if he would consent to be nominated they would assist him to the utmost of their ability.

Mr. ALEC LAWSON said he would be glad to support any nomination from the Society for Mr. Hunting.

Mr. DACRE was sure Mr. Hunting would be nominated, and it was their duty to assist him all they could.

Mr. FAULKNER agreed with the other speakers that the Council and the profession had sustained a loss by the absence of Mr. Hunting, as he had been particularly useful, being original in thought, and it was necessary to have in the Council Chamber one who was independent in his views and not a walker in a set groove. Mr. FAULKNER further added that he would be pleased to again see him a member of Council.

Mr. HUNTING, while thanking them for having spoken so favourably of him, asked for a week's consideration of the matter.

The SECRETARY having read a communication from the West of Scotland V. M. A. *re* Mallein, Mr. W. A. TAYLOR proposed: "That in the opinion of the L. V. M. A., when glanders occurs in a stud of horses, compulsory testing with mallein should be performed on each animal in the stud, and each horse which responds to the test and is, therefore, glandered according to the test, should be thereupon slaughtered and compensation paid to the owner."

Mr. FAULKNER seconded the resolution, which was carried.

Mr. HUNTING said it would be a good thing if mallein were universally employed, as it was invariably reliable.

Mr. FAULKNER pointed out that he had made numerous tests with mallein since it was first introduced, and in every instance it had been reliable. In his opinion mallein was a decided boon to those who had to deal with glanders-farcy.

Mr. DACRE said he would not hamper himself with mallein, but if it were followed by compensation it would be a very good thing for horse owners. If he had an extensive outbreak of glanders to clear up he thought it could be done as well, in as short a time, and with quite as much certainty without mallein. His experience amongst glanders and farcy was considerable, but in no case had he used mallein. He instanced a place eaten up with glanders and farcy for twenty years which entirely recovered itself in twelve months, and had remained for seven years absolutely clear from the disease. He should certainly rely upon his own judgment in stamping out an outbreak of that sort.

Mr. HUNTING read the following paper on "Splints":—

When the subject for discussion, to-day, appeared in the agenda paper, many of your members doubtless said, "What can be told us on this subject

that we don't already know? The answer is—nothing! I have nothing new to advance, but I propose to reconsider what we think we know, and I hope that the focussing of our united experiences may confirm what is correct and displace what is incorrect.

Splints are exostoses between the large and small metacarpal and metatarsal bones. They are apparently an excessive degree of the normal action which fuses together the large and small bones in horses reaching their maturity. An examination of the metacarpal bones of old horses shows that generally one, and sometimes both, the splint bones are united with the central bone by osseous issue. This is found in horses that have never been lame from splint, and the osseous fusion is just sufficient to fix the bones—there is no excess of bone, and nothing abnormal. Very few horses escape without the development of splints, which vary in size and form from the very slightest enlargement up to a well-marked bony tumour.

The first question of interest is—the cause. There is very distinct evidence of a predisposing, as well as an exciting, cause for all horses, though submitted to the same conditions, do not develop splints. The chief exciting cause is, doubtless, work, for it is when horses are put to hard work that we note the development of exostosis. Work is accompanied by extra concussion, and we conclude that this concussion is the exciting cause which gives rise to splint as it undoubtedly aggravates the lameness which results from it. I do not think that external violence, such as is due to blows, has much to do with their production. If it had we should expect to find splints more often on the outside than on the inside of the leg.

There are various conditions which may predispose an animal to abnormal changes, and it will be interesting to consider what bearing some of these have upon the production of splint.

Conformation of the limb at once suggests itself as a possible predisposing cause. So far as my experience goes I am unable to point to any special form of limb which is peculiarly liable to splint. Some of the worst formations escape, and most of the best are affected. I do not agree with the statement that the looser texture of bone is most liable to exostoses. In short, I believe that conformation has no predisposing effect.

Breed confers no predisposition, except what may follow from some breeds being more used for certain classes of work. The horses that are used for fast work on hard roads and paved streets are more prone to splint, and the breeds of horses employed in such manner and places will of course exhibit the effects in greatest number, but breed *per se* has no part in originating, though it may have in transmitting, splints. I know none of the classified breeds of this country that either escape or are specially affected by splints. A friend who spent some years in the Argentine Republic, and was there connected with large breeding studs, informed me that the native horse was free from splints until English stallions were imported. Then the half-breds developed splints on being put to work, and so conclusive was the evidence of the transmission that the presence of a splint on a horse increased his value, as being proof of his possessing English blood.

This I take to be positive demonstration that heredity is a predisposing cause. There is much evidence in the behaviour of splints which points in a similar direction. They usually make their appearance at a definite period of the animal's life—between four and five years old.

They frequently develop slowly, without causing lameness, on both forelimbs at the same time and are symmetrical in form and position. Probably no one will dispute the fact that heredity is the most potent factor in the causation of splints.

A remarkable paper, written by Mr. H. G. Rogers, was published in *The Veterinary Record*, on June 1st, 1889, under the title "The part played by

Evolution in the production of Splints and Spavins." Mr. Rogers accepted the usual belief that splints and spavins arise as the result of predisposing and exciting causes in individual horses; that the great predisposing cause was heredity; and that there was a remote tendency affecting all horses which gave a special liability to ossific changes in and below the knee and hock. His argument seems to be sound, and may be shortly summarised as follows: "The facts bearing upon the evolution of the horse show that the single digit now possessed by the animal is the result of gradual modification, which may be traced back through fossil ancestors till we come to an animal with four digits. The existing equine limb is, therefore, the result of modifications due to the absorption of disused parts, and to the consolidation of others. The bones from the foot to the fetlock have become one single column. From the fetlock to the knee the process of consolidation is still going on to the unification which will be reached when the small splint bones are inseparably connected with the large central bone. Along with this evolution of the long bones we have also a tendency for the lower row of bones in the hock and knee to be reduced in number and simplified in form, proportionate to the number of the bones with which they articulate below. The reduction in number would be brought about by fusion of two or more into one. This consolidating process has, in the horse, proceeded from below upwards, and has now reached the sub-carpal and tarsal regions. Any exciting cause affecting this region acts with the natural tendency to consolidation, and the result is that splints and spavins are the indications of unusual activity in parts obeying the laws of evolution." The author gives many facts and arguments in favour of his very original theory, but I must be content here to quote only one—"The fact that nowhere else in the limb does jar and concussion give rise to exostoses so readily as in the region of the hock and knee, and the parts below which have not yet reached the stage of unification."

Sufficient for us to-day is the fact that splints are a conspicuous example of a hereditary disease. As I use the word disease I would here stop to qualify it, and say it is a very mild one. Splints are an unsoundness, but seldom cause any prolonged lameness. So far as practical usefulness of the horse goes, splints may be ignored, except in a small percentage of cases. But it is just this percentage which makes them of interest to the veterinarian.

The diagnosis of splint is not always easy. A horse may be lame from this cause and yet nothing be seen or felt which enables a practitioner to assert the exact position of any exostosis. The position of the limb when the horse is standing is not indicative, nor is the manner of moving the leg during progression. There is just one peculiarity which suggests that a lameness is probably due to splint—*i.e.*, when a horse walks sound but trots very lame. Such conditions in a horse under six years old are very significant and indicate splint with some precision. When a splint is visible and gives signs of pain on pressure diagnosis is easy, but it is quite possible to have splints of all kinds on a limb which is lame from some other cause.

[Mr. Hunting here introduced a number of specimens of metacarpal and metatarsal bones, which he confessed were not specimens taken from cases whose history he knew, but they would, he thought, do as illustrations. Two of these showed exostosis running right across the back of the bone, under the suspensory ligament. One showed sufficient external enlargemnnt to render detection during life easy; the other did not, and the question of diagnosis arose. A metatarsal bone was shown on which well-marked splints existed close to the head of the bone, accompanied by some exostosis on the back which would, from its position, give no evidence of its existence and yet probably caused lameness. An important question arose as to the obscure lameness in the hind limbs. How many were due to splints? Two metacarpal

bones showed a condition in which the fret extremities of the splint bones were prominently lifted away from the large bone, and must have been very noticeable during life. In each case the points of the bone were much thickened, and ossific union took place about 1½ inches from the end of the small bone. Mr. Hunting thought that the view of his friend, Mr. W. Willis, was correct, that in such cases the end of the small bone was pushed up by the exostosis above. If the bony union extended lower, the whole small bone was closely fixed to the larger. Other bones showed exostosis extending into the knee joint.]

He then continued: When a splint is found and connected with lameness the question arises—How long will lameness continue? When we make all allowance for the age of the horse and the position and form of the exostosis, we are often wrong in the prognosis given. Splints which do not interfere with the knee joint are, as a rule, only temporary causes of lameness, but exceptional cases are not uncommon which give rise to repeated or persistent lameness. I do not think that the position of a splint (away from the knee) matters much. I certainly place no reliance on the forward or backward position of a splint, and do not believe in the interference with the tendons sometimes insisted on. It is the splint you can neither see nor feel which mostly interferes with the suspensory ligament—the splint which extends on the posterior surface of the bone. Sometimes we can feel, both on the inside and outside of the metacarpal bone, exostoses exactly opposite each other. Such cases suggest the probability of bony deposit being thrown out under the ligament and extending right across the back of the bone. My prognosis under such circumstances is always guarded.

A well-marked splint which is tender on pressure does not always warrant a diagnosis. There may be some other cause of lameness, and it is only after adopting every test that we can safely say the splint is the cause. A trot on hard and soft ground, up hill and down, with weight on the back and off, helps us greatly. I am told that a hypodermic injection of cocaine is most useful in doubtful cases. I have no experience of this test, but reliable practitioners are positive that the indications given are trustworthy. The worst form of splint is, undoubtedly, that which interferes with the knee joint. The majority of these, though long in yielding to treatment, recover. But occasional cases give rise to permanent lameness, and, therefore, all these so-called "knee spavins" are to be treated with caution, and a very guarded prognosis given. It is not my experience that "speedy cutting" is often an exciting cause of exostosis implicating the knee.

Treatment.

I do not propose to detain you long on this matter. Rest and cold water will cure some cases, blistering nearly all. Whether firing is ever really necessary or not in any case, I have doubts. Certainly, when it has followed blistering, recoveries have been seen, but possibly another blister might have been equally successful. I have seen more than one "knee spavin" in which firing did not cure the lameness, but a long rest did. Setons I do not like, and never use. Periostiotomy seems to have quite gone out of fashion, but I have seen good results follow it, and in one case where a small, narrow saw was used instead of a knife, and the splint sawn into, not only did recovery take place, but complete absorption of the splint followed in a few months—I think in about four, which were spent at grass.

As to absorption of splints, I think that it is not uncommon. Most five and six year old horses show some splints, but very few twelve year old horses do. They have disappeared with age. Probably there is not so much absorption of bone as is apparent. The real change is due to the absorption of softer material, and only a small portion of the enlargement denoting an

ordinary splint is ossific. The rest is due to exudate in the subcutaneous tissues.

Splints are interesting from a medico-legal aspect. They are an unsoundness, although seldom productive of any long-continued lameness. When examining horses we must mention all splints in evidence, or we may be held liable for negligence. Having mentioned them we may qualify them by an opinion as to their value, and then we have done our duty, and are beyond all legal claims even if our opinion is wrong.

It is easy to be wise after the fact, and any practitioner, when splints cause lameness, is able to say they are unsoundness. Very often, I fancy, law suits are caused by injudicious remarks of veterinary surgeons about horses which their clients have purchased on another practitioner's certificate. I have often been surprised at the amazing skill possessed by some men in being able to state positively how long a splint must have existed. It may be six days, six weeks, or six months. How this gift is obtained I know not. It seems to me allied to prophecy, and I can only wonder how, in some cases, men can be so positive about what I am entirely ignorant of.

Seriously, gentlemen, there is no necessity for our profession to assume such exact knowledge as to the duration of a splint or any other lesion.

Discussion.

Mr. DACRE said Mr. Hunting's paper was very clear on the subject of splints. He did not see a specimen of that little splint as big as a lentil immediately on the edge of the splint bone. This was frequently the cause of lameness. They all regarded a well-formed splint as a mere nothing, but to him the most interesting specimens were those having a bony deposit on the posterior portion of the metacarpal bone, but not interfering with the ligament at all, although there was some evidence of binding down. In such a case, if the knee were kept flexed for two or three minutes would you expect to have greater lameness than before using the flexion? He had found that, where the splint was anywhere near the joint, flexion was of considerable value in diagnosis. He asked Mr. Hunting if he could give him any information about Mr. Hurndall's treatment of splints by the local and internal application of Hecla lava?

Mr. W. A. TAYLOR thought there were very few horses permanently lame from splints, and in these the lameness was due to the splints interfering with the movement of the knee joint. He did not plead guilty to the assertion that splints were seen in animals at five, six, or seven years old, but they were seen in animals over twelve years. Mr. Hunting had extended the age to fifteen years. He had noticed, and doubtless other veterinary surgeons had noticed, that many young Irish horses, after having their shoes removed and reshod in England, suddenly went lame a few days after shoeing. In these cases it might be said that the cause was apparently occult. Some of these cases were now under his treatment, and he had obtained the opinions of various members of the profession in Manchester, which opinions were varied. He had found that a great many of these cases only recover after blistering round the coronet. Mr. Hunting knew full well that there were cases the cause of which was so hidden that extreme care had to be exercised in vouchsafing an opinion. He was glad and thanked him for the manly and outspoken manner in which he had protested against the positive opinion of those who knew much better than others as to the extent of time a splint had been in existence, or any other condition. Regarding the treatment of splints, he had not sawn through a splint, nor sawn or cut one off with forceps. Fortunately the cause of lameness arising from splint, except those of knee spavin, have recovered under treatment, though sometimes tedious.

Mr. WOLSTENHOLME said the subject, not having come prominently before his notice, he had given very little attention to it. He was pleased that Mr. Hunting had quoted the theory as to evolution playing an important part in the formation of so-called splint. It has always appeared to him that a certain amount of change was going on, which in future would result in fusion of the small metacarpals and metatarsals with the large ones. He would like Mr. Hunting to make it plainer to him how the use of cocaine had proved so valuable in diagnosing foot lameness.

Mr. LAWSON asked Mr. Hunting as to the practice in London of examining horses. He examined a six-year old horse for a gentleman, who spent half his time in the Metropolis, which had a splint on each leg and a curb on each hock, for which the horse was fixed. When he had finished with the horse, he told the gentleman that, notwithstanding these objections, the horse was practically sound, and he advised him to buy it, whereupon the gentleman said, "They pass these horses as sound in London." He (Mr. Lawson) failed to see that a horse with two curbs and two splints could be sound. Mr. Hunting had treated the splint lameness very well. Mr. Lawson had had a great many obscure cases in his career.

Mr. FAULKNER, referring to Mr. Hunting's excellent paper on splints, said certain matters mentioned therein entirely coincided with his experience. He had seen many exceedingly troublesome cases of recurring lameness in the mature animal. Mr. Hunting had not particularly mentioned this. An observation made by Mr. Hunting to account for the prominent position of the small splint bone was entirely new to him. With regard to the sawing operation mentioned by Mr. Hunting, Professor Williams had given his experience in the use of the spoon, which was somewhat similar to the sawing operation. There was a decided diminution in the size of the deposit in addition to becoming free from lameness, and, he believed, in certain cases they ultimately disappeared. He agreed with Mr. Dacre that in certain cases flexion was of decided value. He thanked Mr. Hunting for the very interesting manner in which he placed the subject before them. It could be easily understood where the splint was, and in the course of a few days the inflammation passed off, but there were other cases, which had been very puzzling, where no swelling could be felt or pain noticeable. Sometimes they took three or four months. He had seen blistering and firing for six months, and there had been no improvement.

Mr. DARWELL thought splint lameness was not so common as people thought.

Mr. MUNRO said splints were very common. He had seen Professor Williams, of Edinburgh, operate with the spoon, and after the operation the horse had walked or trotted out of the yard comparatively sound. He believed in blistering and firing.

Mr. CHORLTON asked Mr. Hunting whether it was customary to mention splints in cart horses on the certificate, or whether it was unnecessary. Referring to Mr. Faulkner's remarks about recurrent lameness from splints he remembered a six-year-old Irish horse which was sound when it came to town, but it fell lame from splints, the lameness recurring. He did not know how the case went on, as it was sold, but he heard that another man was troubled with it.

Mr. HUNTING, referring to Mr. Dacre's remarks, said he could not give any information about Mr. Hurndall's treatment of splints by the local and internal application of Hecla lava as he had not tried it. He agreed with Mr. Dacre that flexion of the joint would aggravate the lameness when a splint interfered with or was near to the knee. Any joint that had a bony deposit was made worse by flexion. Replying to Mr. W. A. Taylor's remarks as to Irish horses, he should agree with him that the appearance of this splint in that case was

the correct evidence of his diagnosis in the first instance. The speaker's experience of young Irish horses, in fact, young horses of all countries, had a knack of going lame without any cause whatever. As to cocaine, mentioned by Mr. Wolstenholme, he did not know how it acted. However, he knew this, that if a horse stood level, and did not point, and it was thought that he suffered from navicular disease, but to be sure whether it was in the foot or not, if a dose of cocaine were injected hypodermically on each side, and wait seven minutes, and trot him out, he would go sound if it was in the foot. He did not remember any cases of recurrent lameness in adult horses, as named by Mr. Faulkner, but he recollected one in a carriage horse. He did not know that splints occurred in foals. Answering Mr. Chorlton's inquiry, he said he would mention in a certificate if a cart horse had splints. He knew nothing that would be at all useful to the members about splints in the hind leg.

Mr. W. A. TAYLOR proposed a vote of thanks to Mr. Hunting for his kindness in coming to Manchester to address them on a subject of a great interest to the profession.

Mr. LAWSON seconded, and the proceedings then terminated.

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING was held on Friday, 19th March, 1897. Mr. H. H. Roberts presided. There were also present Messrs. P. Snaith, Bishop Auckland; A. Peele, West Hartlepool; A. Neish, Northallerton; C. G. Hill, J. H. Taylor and W. N. Dobbing, Darlington; W. Awde, Stockton-on-Tees. Visitors:—E. R. Gibson, Houghton-le-Spring; F. Richardson, West Rainton; and Mr. Smith, Northallerton. Apologies for non-attendance were received from Mr. J. E. Peele and others.

The minutes of the previous meeting were taken as read and confirmed, on the proposition of A. Peale, seconded by C. G. Hill.

The Mallein Test.

The consideration of the communication, *re* mallein, adjourned from last meeting, was then proceeded with, and after some discussion it was decided to leave the matter in the hands of the Secretary, who promised to write the West of Scotland Veterinary Medical Association on the subject.

The members were generally of opinion that the mallein test was reliable in diagnosing cases of glanders, but that at present the compensation paid for diseased animals did not warrant their recommending its compulsory use in all cases. Provided that all adequate compensation was paid for those animals which reacted to the test and were slaughtered in consequence, they approved of its use. But when an influential body like the London County Council paid only £2 for each horse slaughtered under the Glanders Order, they thought they were hardly justified in recommending it.

Specimens.

Mr. A. PEELE produced the larynx of a cow, showing a large tubercular growth attached to its mucous membrane, and which nearly blocked the passage of air through that organ. When called to see her roaring was present and a cough; she also looked unthrifty. Treatment was adopted, in order, if possible, to remedy the throat mischief, but lung symptoms developed after a while, and she was destroyed.

New Members.

Mr. NEISH nominated Mr. A. Cleasby, M.R.C.V.S., of Thirsk, and Mr. SNAITH seconded.

Mr. AWDE nominated Mr. E. R. Gibson, M.R.C.V.S., of Houghton-le-Spring, and Mr. A. PEELE seconded.

Mr. W. NEWTON DOBBING, M.R.C.V.S., Darlington, here read his paper on "Some Diseases of the Nervous System":—

Mr. President, Gentlemen:—In response to the invitation of our worthy Secretary (and favourable responses ought in my opinion to be more readily forthcoming) to read a paper before you, I naturally feel that I am taking the place of some other member much better qualified to perform what is to me a very formidable task, but as Mr. Awde has tried all round for someone else and failed to get a reply, and I having promised to fill a gap at some time, may I ask for your kind indulgence while I endeavour to make a few remarks on diseases of the nervous system.

I have chosen this subject because, as far as I can see, it is not often before the members of our associations for discussion, and whilst I am afraid I shall not be able to give you anything very original, still a recapitulation of a few facts will not be out of place to-day, and may serve to revive our memories, which have a tendency to get rusty on some points.

We will commence with the general indications of cerebral disorder, some of which are as follows:—Expression, posture, movement, consciousness, aberration of intellect, disorder of special and general sensibility, morbid irritability of motor apparatus, and impaired mobility. Where you have brain mischief the animal in this condition suffers from hallucinations; there is a change from affection to dislike, sight and hearing are defective, the expression is dull, and sometimes the general sensibility is obtuse, or perhaps increased. The motor apparatus becomes considerably enhanced, and the irritability of the muscles becomes greater or less as the case may be, and it is necessary to examine the cranium and spinal cord where cerebral disturbance is present, to see if anything can be detected to account for it. The muscles, too, should be carefully examined, as they waste considerably in paralysis. Electricity is often used as a test of nervous and muscular irritability, and in its application we are to test the irritability of the healthy side, and then apply it to the affected side, and thus determine which is the most susceptible to the stimulus applied.

We have also to note disorders of motion due to spasms or convulsions, the definition of spasms and convulsions, and the varieties of spasm, viz., tonic and clonic, and the extent of distribution and their cause, symptoms and treatment. A spasm is necessarily a convulsion. This occurs where muscles contract without the influence of the will, and without a desire to do so on the part of the individual. Tonic spasms are persistent in contraction and rigidity, example—tetanus. Clonic spasms are interrupted by periods of relaxation, example—chorea. Spasms vary in their degree of intensity, and may be slight or severe. Cramp is a spasm of the muscle attended with pain. Spasms are not confined to voluntary muscles but they also extend to involuntary muscles, as seen in the alimentary canal when a horse suffers from colic. Convulsions are a state of spasm which may be partial or extensive; they consist in an involuntary contraction of a group or series of muscles. attended by a greater or less degree of motion. In spasm there is not any motion. In convulsion there is movement, and this distinguishes the one from the other.

Causes of Spasm and Convulsion. These may be due to central or peripheral nervous irritation. Diseases of the brain are a common cause of convulsions. They also arise from diseases affecting the meninges of the brain. Sometimes the vessels of the brain are thrown into a sudden state of

spasm, the blood being driven out from the capillaries, and is prevented from being replenished, and the animal is thrown into a state of convulsion. Poisons when accumulated in the blood, and this blood circulating in the brain, is calculated to give rise to convulsions. Irritation of the peripheral nerves of the intestine by parasites is sufficient to cause convulsions or epileptic seizures. A single tapeworm is capable of killing a dog by setting up such an amount of reflex action as to destroy life in a few minutes. Teething, when the gums are inflamed and indurated, is a peripheral source of irritation and convulsions. Bones impacted in the posterior bowel and rectum of the dog, are also sources of peripheral irritation and convulsions. The symptoms vary considerably in degree and extent, eyes are glassy, jaws champed, foaming at the mouth, involuntary urinary discharge, loss of motor power, and sometimes a watery discharge from the eyes. The object to be aimed at in treatment is to quiet the nerve centres. When the tongue becomes blue and the visible mucous membranes are reddened, we are to prevent asphyxia if possible, as in these cases the respiratory apparatus is as it were in a vice, and we are to seek to overcome this by artificial respiration, and this should be considered before medicines.

Paralysis. The varieties of this disease are based on the extent and degree of disablement, and as they affect either the cerebrum, the spinal, or peripheral paths. Paralysis of encephalic origin may be considered in regard to the meninges, or brain membranes, and also of the brain itself. The former may be affected by traumatic injuries or organised new growth, the latter may be affected by changes in the vessels, the blood, or the nervous tissue; also by new developments such as tumours or parasitic larvæ.

It might not be out of place to mention here two cases that occurred in our own practice, both in cart mares, where there was in both cases a large and several smaller tumours in each ventricle of the brain. These tumours belong, I believe, to the class psammoma sand tumours. The symptoms were dulness, stupid and vacant look. Both mares moved with a stiff gait and had not proper control of their limbs, sensibility was remarkably obtuse, and they had to be pushed rather than move if you wished to change their position to do anything to them. Tumour mischief in the brain was diagnosed, and the owners informed that any treatment would be of little or no avail, but we were requested to treat the animals for a little while and see how they progressed. This was accordingly done, a dose of aperient medicine being administered, followed by tincture of nux vomica and sol. potass. bromide, blisters to the poll and setons. For a time one of the cases seemed somewhat better, but both eventually entirely lost the use of their limbs through the pressure caused by the new growth interfering with the motor and sensory tracts in the brain, and they had to be destroyed, the post-mortem in each case revealing what I have already described.

If injury to the brain-case has caused depression of the cranial bones the spicules of bone are to be raised and the skull trephined if convulsions arise from this cause. If, however, convulsions arise from swollen gums, etc., the gums are to be lanced, and local bleeding practised to relieve the vessels. Cold is to be applied to the body with a view to reflexly stimulate the respiratory centre; the nervous system is to be put at rest by such sedatives as tinc. opii. or chloral hydrate, or some authorities advocate the inhalation of a little chloroform, or the injection of a little morphia. Having overcome the convulsions, it is—if the case of a dog, and the animal was suffering from worms causing convulsions—advisable that a vermifuge should be given. Animals recovering from these attacks should have a dose of aperient medicine, and not be allowed to eat much food, or endure any severe exertion, and they should be protected from cold and wet.

Paralysis consists in a want of power to voluntarily excite the contraction of one or more muscles; not that the muscles themselves have anything the matter with them, but because the nervous impulses do not reach them. Paralysis of the function of a part simply is connected with a physiological disturbance, and may refer to motion or sensation. Degenerative changes affecting certain anatomical elements, and injuries or new formations, cause paralysis. In disturbances of the brain we have cerebral paralysis; in the spinal cord, spinal paralysis; and peripheral paralysis, from injury to nerves. Paralysis may be partial or general; in the latter case it affects the whole body. The brain is a voluntary centre and has the power to give out impulses, which power resides in the grey matter or cortex of the brain, and without impulses we have no movement. Interruptions in the conveyance of impulses conduce to paralysis, or the muscles may be damaged and are not capable of receiving the impulses. Paralysis arising out of injury to the brain, or the membranes which invest it, such as a clot in the vessel depriving the brain of its nourishment, or supplying the brain with impure blood, the part degenerates, and is incapable of performing its functions. Injuries, by rupturing blood vessels, or shock which may give rise to hæmorrhage. The vessels of the brain are liable to physical changes; they get plugged and may break either in or upon the brain; these diseases of the vessels occur as a consequence of degenerative change, such as aneurism, atheroma, thrombosis, and embolism, thus causing alterations of structure in the vessel wall, or reducing their lumen, or causing them to be empacted and thus cutting off the blood supply. The blood supplied to the brain may be vitiated and paralysis arise from this state. Changes in the nerve tissue may cause paralysis, or increase a new growth giving rise to hardening and fibroid degeneration of the brain with the nerve elements also involved.

Paraplegia. This disease may be due to changes in the bones of the spinal column, or to a very debilitated state of the animal, or again to organic and meningeal disorders. General paralysis and paraplegia usually occurs in the lower animals. Hemiplegia is more frequently seen in the sheep than any other animal. General paralysis is probably most common in the horse, because he is subject to tumour formations in the ventricles of the brain, and is considerably exposed to injuries to this region; and in the sheep hemiplegia because of the larval parasite affecting one side or other of the brain. General paralysis results from injuries to the hemispheres of the brain or to the motor tracts at the base of the brain; and there might be convulsions, or unconsciousness and dulness, want of intelligence, senses blunted, etc. Injury to the upper part of the neck would cause general paralysis of both fore and hind limbs, but consciousness would remain. Paralysis often follows on parturition, and often takes the form of paraplegia, more particularly in the cow. It may occur from calculi in the bladder; these are reflex cases. Symptoms depend on the manner in which the cause operates; it is sometimes sudden and acute, at others slow and progressive. Sudden escape of blood from the vessels, thus robbing the brain of nutrition, pressure of blood on the brain, or injury, would be causes of sudden and acute paralysis. If the paralysis was due to a tumour the symptoms would commence by small degrees, and the brain and vessels would accommodate themselves for a time to the new growth.

In some cases there are, and in others there are not, any premonitory signs. In apoplexy there are no premonitory signs, and it is characterised by sudden paralysis, the animal is unconscious, and falls down, and the limbs are perfectly passive and quiet, the eyes congested, the pupils act indifferently, the vessels of the head are inordinately full, and there is congestion of the buccal and schneiderian membranes. In an epileptic seizure the paralysis strikes

the animal down, and unconsciousness prevails, but the limbs are in an extreme state of agitation. Paraplegia is a paralytic condition of an autero-posterior segment of the body, as a rule both sides being affected. Paralysis may extend from the spot where an injury is received as far as to involve other centres, such as those for micturition, defæcation, and parturition. To determine the point of injury ascertain where the reflexes stop.

Damage in the cervical region, involving the phrenic nerve, would considerably embarrass the breathing, as this nerve supplies the diaphragm or chief muscle of respiration. Other causes giving rise to paraplegia are injuries to spinal cord from mechanical causes, and bones undergo organic change, or concussion and jar of the bones. Tuberculosis and osteo-porosis affecting the bones and thickening of the membranes, or new growths in connection with them. Inflammation of spinal meninges, effusive conditions in the arachnoid or sub-arachnoid space, thus causing pressure on the cord; certain nerve changes and degenerative changes in the cord; disordered nutrition of a temporary character arising out of remote peripheral irritation, causing temporary paralysis.

Hemiplegia is of restricted occurrence in the lower animals, and in this disease one lateral half of the body is paralysed. The right side of the brain presides over the organs on the left side of the body, as the motor fibres decussate in the medulla, whilst the sensory fibres decussate in the spinal cord as soon as they enter. Its causes are much the same as general paralysis or other forms. Sheep, as you are aware, are most liable to this disease on account of the parasite occupying one or other side of the brain. The muscles of the face and eyelid on the paralysed side are affected. In hemiplegia the cranial nerve particularly affected is the 7th, as it presides over most of the muscles of the face. The temperature of the muscles on the paralysed side in the early stage of the disease is raised owing to the relaxation of the vessels and a greater amount of blood flowing through the part. When the cerebellum is affected, the animal carries its head high up.

No set treatment can be laid down. Trephine and raise the bones in cases of depression of the bones of the cranium, and also in cases of gid in sheep. Give a dose of aperient medicine and afterwards obviate overloading the stomach and bowels, on account of the sympathy which exists between the stomach and the brain. Local application in the form of counter-irritants in the region of the cranium and intermaxillary space. The animal may be put under the influence of pot. iodide with a view to getting any of the exuded fluid, etc., absorbed, quietude and absence of excitement being absolutely necessary. Cold fomentations in cases where the meninges are involved and aperient medicine. Give tone to the nerve centres by administering strychnine and quinine and ferruginous tonics; blistering back and putting setons in back if complaint! is spinal. Galvanism or electricity is used, but cannot be very well applied in our patients.

Local paralysis or peripheral paralysis is due to some injury to a nerve after it has left the centre from which it originated; example, damage to the third nerve would show drooping of eyelid, laxity of the eyeball, and the eyelid would be turned in an outward direction, thus producing external strabismus or divergence of the eyeball, the pupil would be dilated and fixed, owing to the sphincter pupillæ being paralysed, the dilator muscle of the pupil being unopposed. Damage to the fourth nerve which supplies the superior oblique muscle of the eye would cause no serious inconvenience. Damage to the fifth nerve, if to its inferior maxillary division which is chiefly motor, the animal would find a difficulty in masticating food, and the food would collect in a mass on a healthy side, and the animal would be unable to hold water when drinking; the muscles would be smooth and flaccid, while the mouth would be drawn towards the healthy side.

Epilepsy is also a disease of the central nervous system in which sudden loss of consciousness and complete paralysis are quickly succeeded by spasmodic rigidity of the voluntary muscles, followed by clonic convulsions. It presents itself in seizures of greater or less severity, and usually of short duration, but with a tendency to recur either with rapid succession, or at more or less prolonged intervals. It is physiologically related to functional disturbances and lesions either of the central nervous system or peripheral parts. It is more common in young dogs and puppies, and arises frequently from disordered digestion. Dogs are more liable to epilepsy than other animals. I have previously mentioned most of the causes and symptoms of epilepsy, and therefore it will be unnecessary for me to repeat them. It is not a fatal disease, and an animal may suffer many attacks before it is fatal. It is advisable not to do too much, but let the animal pass through the epileptic seizure, watching to see in what way you can assist him, as by spraying the body with cold water and applying artificial respiration, turning the animal from side to side and changing his position. If a horse, remove the harness and relieve any pressure on the course of the jugular circulation. After one attack there is always to be anticipated a second or succession of attacks. The cause should be ascertained and removed if possible.

I have already trespassed considerably on your time and patience, gentlemen, and will conclude by thanking you for your kind attention and by asking you to be lenient in your criticism of a subject to which I have done anything but justice.

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held on Thursday, March 25th, at the Royal Hotel, Above Bar, Southampton, there being present—Messrs. J. T. King, Bournemouth (president), in the chair; J. F. Simpson, Maidenhead; C. Carter, Guildford; J. B. Tutt, Winchester; G. H. Hall, J. W. Barford, and G. J. Gould, Southampton; E. W. Baker, W. Hunting, London; and C. Pack, Lymington, hon. sec.

Apologies for non-attendance were announced from Sir Henry Simpson, Mr. Wragg, and Mr. Albert Wheatley.

Exemption from Juries.

Mr. SIMPSON said, arising out of the minutes of the last meeting, he might say he brought the matter of the exemption of veterinary surgeons from service on juries before the Council of the College, and moved for a Committee to be appointed. It was eventually referred to the Parliamentary Committee, and the Council decided, not only to refer it to the Committee, but to instruct the solicitor to the College to make the necessary inquiries as to the cost and method of procedure to obtain the object in view. The Parliamentary Committee of the College had since met, and it was found that to go for the special exemption of veterinary surgeons would be a somewhat costly matter, and in the end it would be very doubtful if they would obtain what they desired. For that reason it was thought advisable that they should wait. From time to time there were Bills introduced into Parliament—Jury Exemption Bills he thought they were called—and it was thought advisable to wait until notice was given to bring in such a Bill, which would include other societies as well as their own, and they might rely on it that the Council would keep a watchful eye on the doings of Parliament, and at the right moment would go in, with others, for claiming exemption for the members of the veterinary profession.

The CHAIRMAN: Mr. Baker, you take a warm interest in the subject, have you anything to say?

Mr. BAKER stated that what he had to say was simply this, "the proof of the pudding was in the eating." They had one member of the Council who did take a very warm interest in the subject, and if it were not for him he ventured to say that it would be absolutely shelved. They had had proof of that in the past, because they had made application and had been practically told that the matter was one beyond their power to enter into. He thought they must not trust to the Council to take the necessary steps, and he would suggest that they should again wake up each of the veterinary societies, and ask them not to leave it to the Council. They were all individually interested, but he thought there were a few members of the Council not likely to be interested, as they were not likely to be called on to serve, while the smaller fry were. He thought it was advisable to ask the secretary to request kindred societies to keep a watchful eye on Parliamentary Bills themselves, and, when they saw the matter crop up, each make its application. He failed to see that it was going to be a costly matter if they took it up as a whole. He was assured by a gentleman there that when the matter came before the Government on some previous occasion, solicitor's chief clerks were exempted, and, surely, if they were, veterinary surgeons should be.

The SECRETARY: That is a fact.

Mr. HUNTING: Nearly all are solicitors themselves.

Mr. BAKER replied: Not all; and said he did not think a solicitor had more right to claim exemption than himself. He was not speaking for himself as an individual, though he admitted he was a sufferer, but he was speaking for the profession.

He did not know whether Mr. Simpson took any steps about the fees they received; that was a matter which equally required attention. When it was brought up, Mr. Goodall told them that the only time when they had to go as witnesses, they were offered £1 os. 10d. to cover their travelling expenses, maintenance, and every other cost for two days, and was that, he asked, sufficient to recoup a medical man for two days?

The SECRETARY stated that a letter had been received from Mr. Hill, Secretary to the R.C.V.S., dated November 3rd, 1896, stating that he had had the pleasure of laying his (Mr. Pack's) letter before the Council, when it was resolved that the solicitor be asked to report at the next Council meeting the steps which should be taken for, and the probable cost of, obtaining an Act of Parliament to exempt veterinary surgeons from acting on juries. It said nothing about fees to veterinary surgeons as witnesses. He had also received a letter from the Secretary to the South Durham and North Yorkshire Veterinary Medical Association promising their assistance in the matter.

It was suggested in one of the letters that when subpœnaed the fee should be asked for before giving evidence, and that if it were not forthcoming we should refuse to give evidence.

That might do in civil actions, but it was criminal cases, added Mr. PACK, that they wished to bring under their notice.

Mr. BAKER said he did not think that point was within their power. If they were called they must go; he should not like to refuse and stand the consequences.

The PRESIDENT thought should conduct money be tendered they must accept it. He thought it meant to conduct them to the place of trial where the case was heard. The question was should they take Mr. Simpson's advice and leave things as they were, or come to a definite decision that day.

Mr. SIMPSON stated that the subject of fees, he thought, would follow the other. Once get recognised as of sufficient importauce to be exempt from jury service, the question of fees would come in after that without doubt. At the

same time if the members of the Association wished that he should press the question of fees before the Council he would willingly do so.

Mr. BAKER: And the jury question as well.

Mr. SIMPSON: That is for you to decide; but when you see the report of the Parliamentary Committee of the Council, which will be published next month, you will be in a better position to see how the ground lies.

The PRESIDENT: It will be better to leave the question of fees in your hands, as you have taken the matter up.

Mr. BARFORD: It wants pressing forward.

The PRESIDENT: It has been well pressed forward so far as Mr. Simpson is concerned.

Mr. BAKER said it wanted pressing. Only two classes of men got paid at the same rate. One were the medical men; but whether the others were solicitors, he could not state as he did not keep the correspondence. Mr. Goodall and himself lost the proper amount by refusing to take any, and got nothing. He wrote to the clerk of assize, and the reply he received was that these fees were based on a scale arranged years ago; he could not tell how many. He did not know whether it was not as far back as the beginning of Her Majesty's reign. There were two exceptions—medical men, and he could not tell whether it was clergymen or solicitors.

The PRESIDENT: We cannot do better than leave it in Mr. Simpson's hands.

Mr. SIMPSON said he should be glad to do anything he could.

The PRESIDENT: It does not require any resolution.

Mr. HUNTING stated that he had considered the question, and if they were going to whittle the juries down until it was left in the hands of greengrocers, etc., he would do all he could to have all exemption done away with. He thought it an abominable thing that every petty jury should consist only of greengrocers and tinkers.

Mr. BAKER: As to fees?

Mr. HUNTING: That has nothing to do with Parliament. It is arranged by the High Court of Judicature, and in criminal cases all get the same.

Mr. BAKER replied that the exceptions got paid as professional men, and veterinary surgeons as labourers.

Mr. HUNTING said they might be called as witnesses, and they had to give their evidence as they had no choice. Professional opinion was a totally different thing to facts. They might be compelled as veterinary surgeons to give evidence as to facts.

Mr. BAKER said he would call Mr. Hunting's attention to the fact that he wrote and got definite information that there were two exceptions in these criminal cases.

Mr. HUNTING: Giving evidence as to facts there is no difference, and remarked that Mr. Baker was putting his knowledge against the country, and mentioned a case tried before Lord Chief Justice Coleridge, where it was said every man was compelled to go, on payment of conduct money, to court, and if he should be called any evidence he had to give as to fact he had to give, no matter who or what he was, professional man or not, and could not demand his fee from the party bringing him to court.

The SECRETARY: Was yours professional evidence?

Mr. BAKER: No, it was as to fact. With respect to bringing it down to greengrocers and tinkers we are professional men, and I think we must admit greengrocers have a certain status.

Mr. HUNTING: I have said nothing about his status. What right have you to ask for exemption more than they? Doctors go where they like on their own business, but when it came to the British public that was a totally different thing. They might tell them, if they were called away, a cow might

die worth £2 ; but there, they knew it was different and they wanted to be the same as other professional men. He thought that argument was entirely and utterly wrong, and he believed in the jury system.

Mr. BAKER: You will admit the Government is not looking on it in that light.

Mr. HUNTING stated that some time ago Mr. Coleridge, as he was then, brought in a Bill and endeavoured to get certain exemptions. He had to admit others, and he was so disgusted at it being opposite to what he wanted that he let it die the death of the innocents, and they had had no Bill since.

Mr. BAKER asked to be excused for taking up time, but it was an important matter, and they should thrash it out. Mr. Hunting said they were not fighting for the public, but he was honest enough to say and think they were acting for the public good. Supposing a veterinary surgeon lived ten miles from Southampton, and the nearest other lived at Southampton, could it be said, if that veterinary surgeon should be called away, that the public would not suffer? The Government must consider the question of the case when chemists were exempt.

Mr. HUNTING: Because Dickens wrote a lot of nonsense about them.

Mr. BAKER : I wish he had written a lot of nonsense about us.

The PRESIDENT: If we leave it in Mr. Simpson's hands he will watch over the two things combined.

Message of Congratulation to the Queen.

The PRESIDENT said it would be remembered at their last meeting they sent a telegram to the Queen congratulating Her Majesty on having completed the longest reign in English history. A reply was sent to him at Bournemouth on the 25th September, and was addressed to him as President. It said, "The Queen thanks you for your kind message of loyal congratulations," and it was signed by her private secretary. It was an important item, and he proposed that the telegram conveying the gracious message should be entered on the minutes.

Mr. SIMPSON seconded the proposition, which was carried unanimously.

Mallein as a Diagnostic Agent in Suspected Glanders.

The circular letter from the West of Scotland Veterinary Medical Association was read, forwarding the following suggestion: "When glanders occurs in a stud of horses, compulsory testing with mallein should be performed upon each animal in it, and each horse which responds to the test, and is therefore glandered according to the test, should be thereafter slaughtered, and compensation paid to the owner out of the funds of the Board."

The SECRETARY said this letter had been before most of the Associations whose meetings had been held this year.

Mr. SIMPSON said he could not claim to have had any great amount of experience as to the use of it. Many of his friends had, and he was very much struck with the test, which was applied to some horses only last Sunday. A case of glanders had occurred in a stud of some six horses. The remainder of the horses were unaffected, so far as one could tell by ordinary examination; but it was thought advisable to apply the mallein test, and with one exception all the horses responded to it, the temperature rising from 100-2-5ths to between 105 and 106. In the remaining horse the rise of temperature was exceedingly small, only up to 101. He had heard sufficient from his many friends, who had used mallein as a test, to say that he had no hesitation in supporting the resolution which had been passed by the West of Scotland Veterinary Medical Association; but he had no doubt their Association would be much of the same mind as the other Associations when the subject had been before them, namely, that it hardly came within their province to dictate

to the Board of Agriculture how the money for compensation should be paid, and, in fact, that the money should come from the Board of Agriculture. He thought he was right in saying it could not be granted.

Mr. HUNTING: Not without another Act of Parliament.

Mr. SIMPSON: So I propose we endorse the opinion of the West of Scotland Association, leaving out the last seven words, "Out of the funds of the Board."

Mr. BAKER: You won't make it compulsory on a local authority to give full or half value?

Mr. SIMPSON: That is a thing they would settle among themselves so long as we recognise the principle of the mallein test.

The PRESIDENT seconded the proposition, which was agreed to.

An Appeal.

The SECRETARY stated that he had received a circular letter from the Roads Safety Association, of which the Earl of Lonsdale was President, communicating the result of the action of the Association in the matter of the Motor Car Act, 1896, and requesting support to the funds in the action taken to obtain modifications of the Act.

The PRESIDENT: Those who have capital can't do better than increase the funds of the Association.

The letter was ordered to lie on the table.

Public Health (Scotland) Bill.

The SECRETARY stated that he had received a circular letter on the Public Health (Scotland) Bill from the President of the R.C.V.S.

Mr. SIMPSON stated that a good deal could be said about this subject, but what he would urge on members was that, if they had not done so, they should see their parliamentary representative, and in the interest of the veterinary profession try to obtain from him a promise that he would endeavour to alter clause 40 of the Bill, so that veterinary surgeons should in future be the inspector of animals intended for food and of meat, or, at least, that no inspection should take place without their assistance, and to support section 57, and, if possible, to extend it, so that veterinary surgeons only should be qualified as inspectors of dairies. He did not know if they were aware of it (perhaps they might have forgotten), but last year a similar danger threatened them. A Bill was introduced in the House of Lords by Lord Balfour, of Burleigh, the Minister for Scotland. There was nothing in the Bill itself, but certain amendments were proposed, and there was the danger of these amendbeing accepted. At that time he went up and say Lord Balfour and obtained from him a promise that he would not voluntarily accept the ammendments suggested, which were most objectionable to them as veterinary surgeons, inasmuch as it was suggested that medical men first discovered diseases in animals communicible to man, and in the whole of Scotland it was doubtful whether a sufficient number of veterinary surgeons understanding the question could be obtained. He pointed out to Lord Balfour that they had in Scotland at that time practising something like 550 members of the profession, and told how many there were in each county, and satisfied him that the assertion made by the medical men, because it was nothing more or less than the assertion of medical men, that their statement was absolutely without foundation. The Bill now before them was introduced into the House of Commons, and he hoped English veterinary surgeons would not think because it was a Scotch Bill it would not interest them, because what was made law in Scotland to-day might in twelve months time be made law in England. He thought they would do more good for themselves by fighting in their own interests with their members of Parliament than by taking up other cases of

very minor importance. For that reason he, as a member of the Council, and an English veterinary surgeon, urged them to insist on seeing their Parliamentary representatives and pointing out to them the danger the profession was in of being snubbed.

The PRESIDENT said it seemed to him that they could not do better than act on the advice of Mr. Simpson. As Mr. Simpson had said, if the Bill became law in Scotland it might shortly become law in England, and it was their duty to look after their interests. They should therefore see the Parliamentary representatives who were members for their respective localities, and for his part he should have great pleasnre in seeing the member for Christchurch. He trusted every one of them would use every effort to endeavour to get this Bill put in a more beneficial light to themselves.

Mr. HALL said, in response to the letter, he had written to both their members of Parliament for Southampton. From one he had received a reply acknowledging the receipt of his letter, and stating that he had placed in the hands of those members of Parliament interested, as it was not a matter in which he took any interest. From the other member of Parliament he had not yet received any reply.

New Member.—Election of Officers.

Mr. Spencer, of Basingstoke, was elected a member of the Association.

On the proposition of Mr. TUTT, seconded by Mr. SIMPSON, it was unanimously resolved that Mr. King be asked to again accept the Presidentship of the Association.

The PRESIDENT said he should be very glad to retain office, as he considered it was an honour; but he thought it should be filled by all in rotation. He had not done much for the Association, but what he had done he had done from his heart. He should have great pleasure in carrying out the duties for another year, but he would not like to deprive other members of the honour.

Mr. SIMPSON remarked that there would be a meeting of the National Veterinary Association held at Reading in August next, and he hoped the President would do the best he could to get members of the Association to join the National if they were not already so, and to put in an appearance there.

Messrs. J. W. Barford, E. W. Baker, C. Carter and J. B. Tutt, were elected Vice-Presidents.

Mr. Pack was re-elected Secretary and Treasurer, and Mr. Simpson agreed to accept ihe office of auditor.

The SECRETARY in returning thanks for his re-election said he had the pleasure to inform them that the funds of the Association were in a fairly prosperons condition. He could not say they were flourishing, but they were increasing yearly. All they wanted was a better attendance at their meetings and then his office would be a very pleasant one indeed.

Mr. W. HUNTING, F.R.C.V.S., here read a paper on "The Veterinarian as a Public Officer":—

It is often said that the specialisation of callings, which is apparently necessary to our civilisation, has many advantages. The great disadvantages being (*a*) that the specialist, although more perfect in his own line, becomes narrow and limited in knowledge and action; (*b*) that the rest of folk become content with his superior work, and relying upon his supremacy altogether neglect his subject. There was a time when our wives made our clothes, and the majority of men repaired their own boots. Very few of us would care to revert to those times, and there is a pretty general conviction that the tailor and shoemaker are useful specialists without whom the burdens of life would be greater. Limitation to their calling makes them experts, and the

rest of mankind are only too willing to utilise their skill. It may be that specialisation narrows a man, but that is a purely personal disadvantage which the world may well tolerate for the greater excellence afforded. All progress seems to me to result from the work of the man with one idea, and very few human beings do any good to their kind unless their whole intelligence is concentrated on the one thing they make a speciality.

In my youthful days every village had a handy man who could muddle through the work of various trades from pig-killing to bell-hanging. Probably this jack-of-all-trades and master of none still finds a place in districts where civilisation lags behind, but his services are not now demanded where a skilled tradesman is to be found. To give the handy-man his due, he was useful until a better man could be found, and he was cheap. I say cheap, but I do not mean economical. His work was slipshod, and his mistakes not seldom expensive.

It seems to me that the disadvantages of specialisation are quite overborne by the advantages, and that the public are best served by the employment of the highest skill and training, even if their possessors are narrowed and limited to one division of human usefulness.

Now, applying these generalisations to the veterinarian, let us consider what special qualifications he has to attract the public. He possesses a thorough knowledge of our domestic animals in health and disease. That he has this knowledge is guaranteed by his diploma—a document he can only obtain after a four years' course of study. His four examinations are such as can only be successfully passed by a man possessed of experience of animals, a natural aptitude for their handling and observation, sound knowledge as to their structure and function, great proficiency as to their diseases.

The individual owner of stock, whether horse, cattle, sheep, pigs, dogs, cats, or birds, has long since recognised the special knowledge of the veterinarian. He consults the trained expert, not only when his stock is diseased, but frequently with a view to the prevention of disease, and as to the breeding, feeding, and general management which is most likely to add to the comfort of his animals or to the economy of their lives.

The peculiarity of the knowledge of animals possessed by the veterinarian is that it is thorough, that it is based upon science, and that it embodies the recorded experience of observers past and present in all countries. Of course the recently graduated veterinary surgeon does not possess the experience of stock-owners who have devoted a lifetime to some special kind of stock. But he possesses an intimate knowledge of principles and a mastery of the structure and functions of animals that only requires a proper field of experience to make him easily superior to the man of untrained observation, no matter how extensive that observation may be.

My acquaintance with the members of the veterinary profession is, of course, limited, yet I can point to many men who are living examples of what I say, and you, gentlemen, doubtless can name many others

In the breeding of stock of various kinds who will claim superiority over such men as Stephenson, of Newcastle; Brydoe, of Seaham Harbour; McCall, of Glasgow; Pallin, of the Gurragh; or Hammond, of Bale. Their eminence is due to the application of their veterinary knowledge to a special branch. In the feeding of horses who can show such results as have been achieved by Reynolds, of Liverpool; Hunting, in the Durham Collieries; Malcolm, of Birmingham; or McGill, in the London Tramways. Their eminence is due to their knowledge of foods, of digestion, of physiology and pathology. Here, in Southampton, the name of the late Mr. Barford will occur to every one present as a good illustration of a veterinary surgeon who possessed special skill, and whose technical knowledge was often sought for by agricultural and administrative bodies. In the general management of

horses a very significant fact is made evident in London. The largest job-masters are Wimbush, East, Withers, and Dollar. In every case the guiding head of the business is, or has been, a veterinary surgeon. The great tramway and omnibus companies afford further evidence of the value of veterinary services. In London alone these concerns employ about 30,000 horses, and every company entrusts its veterinary surgeons with the prevention of disease, as well as with its cure. In other words the health of the animals, so far as stabling, ventilation, feeding, etc., go is largely dependent upon the supervision and advice of the veterinary surgeon.

Until the individual stock-owner has fully recognised the value of veterinary skill, it is of course not to be expected that collective bodies will estimate him properly. The individual stock-owner *has* recognised the veterinarian, and collective bodies of stock-owners also recognise his value. But there are bodies which often fail to appreciate either the duties or the value of veterinary services. These are bodies on which the majority are not stock-owners, and which for want of knowledge fail to utilise the special training which is at their command. Public bodies consist of men selected from all ranks and callings. They are usually fairly representative of the mass by whom they are elected, and naturally the smaller interests are swamped by the greater. Except in a few agricultural districts, public bodies are specially wanting in knowledge of animals, and consequently the interests of animals are neglected. Self interest or sentiment guides most human beings, and unless that self-interest is awakened or that sentiment appealed to, action lies dormant. If the veterinary surgeon desires to maintain his position as the possessor of valuable special knowledge, he must make it evident. He must demonstrate to less informed bodies that he really has information and power which they would do well to use. So long as he is content to hide his light, he has no right to complain that he is not seen and not appreciated. The "handy man will always be ready to offer his cheap, if amateur, services; and those employers who do not know the expert article, will be content to muddle on with the assistance which is nearest their hand, or which is able to intrude itself more plausibly. Doubtless, in course of time the veterinarian will, by the mistakes of the amateur and by the ever-increasing knowledge of the people, obtain the public recognition he deserves, but this time will be shortened by his own active interposition and by his demonstration of abilities to perform work, for which he is specially fitted, in a superior manner to any of the untrained and inexpert beings who now fill many of the posts he alone is best able to occupy.

Before mentioning the specific positions which I maintained a veterinary surgeon should hold, I would like to point out those in which he has already been tried and found efficient. The State discovered veterinary value over a century ago. At the end of last century the War Office, after bitter experience of the loss of efficiency resulting from disease in the horses of the army, appointed Professor Coleman of the Royal Veterinary College to an advisary office. So immediate and marked were the good effects of his action that a Veterinary Department was established, and cavalry and artillerymen were supplied with trained men to look after the health of the horses and to control the frightful loss that had sesulted from disease and injury. Now every regiment of horse and every battery of artillery has its veterinary surgeon, and the saving to the nation has been demonstrated beyond dispute, both in peace and war.

The Civil Service of the State was longer in finding out the value of veterinarians. But in 1865 the invasion of cattle plague threatened to decimate our herds. Cures were tried, agriculturists and medical men offered sugestions, millions of money were lost, and then the veterinaries advice and assistance was accepted with the result that the plague was stayed and his posi-

tion recognised. In this event the names of Gamgee, Simonds, and Brown will ever be remembered with feelings of gratitude and pride. Other animal plagues existed and had, since 1839, ravaged our flocks and herds. The success which followed our efforts with cattle plague educated the legislature of the country, and a permanent Veterinary Department was formed to carry out the regulations of the Contagious Diseases (Animals) Act. Gradually the other plagues of live stock were suppressed and now Foot-and-mouth disease, and Pleuro-pneumonia are practically extinct in the kingdom. I am not altogether satisfied with the position given us by the State, but I am bound to confess that we have obtained fair recognition of our essential usefulness, and I look forward hopefully to the time when the Veterinary Department of the Government will be given its full measure of acknowledgment as an indispensable and trustworthy factor in the machinery of the state.

The Indian C.V.D. and numerous Colonial appointments are also strong evidence of the position we now hold in the estimation of authorities who know their own wants.

The Royal Agricultural Society of England and the Highland and Agricultural Society of Scotland have long recognised the value of veterinary advice. Both of these bodies have assisted veterinary science in noble manner from the day of their inception. Both still accord us their patronage and confidence, and we venture to believe that they do so from knowledge of our usefulness and experience of our capabilities. All over the country other societies interested in the welfare of live stock make the utmost use of the knowledge of veterinarians. The Royal Commission on horse-breeding framed their regulations for the prevention of hereditary disease upon the advice sought from and tendered by the Royal College of Veterinary Surgeons. The Dairy Farmers Association have more than once depended on veterinary aid to correct the erroneous theories of medical officers in relation to animal diseases, and their confidence has not been misplaced.

The Hunters Improvement Society, the Kennel Club, the Society for the Prevention of Cruelty to Animals, the Sanitary Institute, all look to the veterinary profession for help and guidance. These bodies include many members with special knowledge, and all are directly interested in the health and disease of domestic animals. Their knowledge and interests enables them to appreciate the assistance we are able to offer.

I claim that there is wider sphere for our talents than is covered by all these Societies. Next to the Central State Authorities come the various Local Authorities, to whom so much of our modern government is delegated. These bodies, both in town and country, are entrusted with great administrative powers affecting the health and wealth of the people. Very few of them have yet awakened to the knowledge that veterinary science is indispensible to their beneficent action. They still trust to the "handy-man" for work in connection with animal life, and, with a few exceptions, fail to recognise that in the veterinarian there exists a trained expert who can give assistance of the greatest value, not only in protecting the lives of animals but in safeguarding the public health.

Only in recent years has it been generally recognised that there are diseases of animals transmissable to man, and that animal products of daily use are often a source of danger to human life. Glanders in horses, rabies in dogs, anthrax in all animals, and tuberculosis in cattle, are all transmissible to man. Meat, milk, hair, wool, and hides may all contain injurious properties, or even fatal poisons. Parasitic diseases, too affect man and animals—some of them interchangeable. Butchers' shops, milk shops, cow sheds, stables, kennels, pig-styes are all under the control of Local Authorities, and it requires no argument to make clear that such places are better understood by veterinar-

ians than by any other class. If the public health is to be guarded properly it can only be by the conjoint action of medical and veterinary officers.

If the human treatment of animals is worth supervision in civilised communities it can be best done by veterinarians. If the national wealth in live-stock is to be protected by any collective action our local authorities must look for advice and assistance to the same class. If meat and milk are to be produced from pure and healthy sources their inspection must be placed in the hands of men who understand animals and their diseases and who can recognise the lesions of disease on post-mortem examination. There is only one class who can do this—the veterinarian.

Some few town and county councils have already grasped the fact that supervision of animal life is the work of trained experts, and that economy and efficiency are both served by entrusting it to veterinary officers. No stronger argument in favour of our claim is to be found than in the curious expedients adopted to fit other men for the work. The medical man confesses his training insufficient by supplementing it with a special diploma in public health. The sanitary officer struggles to fit himself for the work by attending once or twice at a slaughter-house, reading a few books, and attending half-a-dozen lectures by specialists.

The diploma of the R.C.V.S. is the high-water mark of proficiency in chemistry, physiology, hygiene, and pathology as applied to animals—a mark only given after at least four years' study and a series of stiff examinations. The profession has been in existence for over fifty years, and it seems strange to have to insist upon its recognition by authorities.

Amongst the large towns, Edinburgh may claim to have been first in seeing the value of dairy and meat inspection being carried out by men who understand their calling. The council of Edinburgh have for years past employed a veterinary surgeon to advise them, and to act for them in suppressing disease amongst animals, and thereby preventing disease amongst men.

Glasgow has for long utilised veterinary advice, but recently has made a further departure in appointing a M.R.C.V.S. to assist the medical officer of health.

Liverpool is another great town where the local authorities rely upon the advice of a veterinary surgeon for all work pertaining to animal life or animal products.

Manchester has placed its meat, dairy, and diseased animals inspection under a chief and an assistant veterinary officer, and every day the authorities are more satisfied with their action.

The county of Northumberland has been pre-eminent amongst counties for the sure and rapid way in which it has always dealt with diseases of stock. The explanation is that its chief veterinary inspector was trusted as an adviser and administrator.

The county of Surrey is a district nearer home in which a chief inspector to advise concerning animals and their diseases has been selected from the veterinary profession. More recently the county of Salop has appointed a veterinary surgeon Chief Veterinary Officer, with an annual retaining fee and an office for his use. To him the councillors can go for assistance and advice, and to him are remitted questions for consideration and report.

The greatest of all local authorities—the London County Council—still ignores veterinary advice, save what is irresponsible and unofficial. The Executive Committee never see a veterinary surgeon, never ask his advice, and yet they issue orders affecting thousands of animals and their owners. London contains 600,000 horses, thousauds of cattle and sheep, in addition to hundreds of milk cows, and perhaps a million cats and dogs. There are innumerable slaughter-houses, butchers' shops, stables, dairies and milk-shops. Glanders, anthrax, rabies, tuberculosis, and a large collection of parasitic

diseases prevail, all transmissible to man—but no veterinary surgeon is ever asked for his advice. The committee issue voluminous orders and regulations, they possess a marvellous assortment of papers and documents which, doubtless, contain useful statistics and valuable information to any trained officer capable of understanding them. All these regulations and statistics are so much dead mechanical matter for want of the vital element—the trained professional brain which should inspire them. The Council employ accountants, lawyers, engineers, architects, medical officers, and other experts—but no veterinary officer. It is true that when the owner of a diseased animal desires its destruction, some practising veterinary surgeon is employed by the council to diagnose its disease and register its death. He is paid for each case, and his interests and responsibilities cease with the case. This is carrying out the letter of the law, but ignoring its spirit. It is saving the ratepayer a penny but mulcting him of a pound, for such half-hearted proceedings only ensure the continuance of disease, with all its loss, danger, and expense.

It seems a pity that London, which might set an example to the provinces, is so wanting in appreciation of the part the veterinary surgeon should play in any well-considered attempt to control disease amongst animals and its spread to human beings. The explanation apparently is that in this great metropolis the larger questions entirely hide the smaller, and that the representatives of the ratepayers include few who care for animals or who know the dangers attending their neglect.

The question of public health is commanding increased attention every year. So long as animals exist amongst us in large numbers, so long as they suffer from disease transmissible to human beings, so long as meat and milk hold their place as necessary articles of food, we may be sure that the life and health of animals must be included as objects of importance in any scheme adopted by authorities for the welfare of the public. Owners of animals, medical officers, and all leading pathologists agree in acknowledging the veterinary surgeon as the only trustworthy expert for the supervision and direction of animals and their diseases. We must wait for similar recognition to permeate the general public, but we must not wait idly. It is not sufficient to know and feel that we possess qualifications which are of public utility. We must press forward our claims, use our influence as ratepayers and electors to obtain the positions we are fitted for, and never lose an opportunity of exposing the folly, expense, and danger which accompany the employment of amateurs in positions requiring experts.

Discussion.

Mr. BAKER stated that he should like to say how much indebted he felt to Mr. Hunting for his paper, and felt that he had expressed the views of each one of them.

The CHAIRMAN said he was sure they owed Mr. Hunting a deep debt of gratitude for the most interesting address he had given them. As Mr. Baker had said, the views he had expounded were those they all believed in. The address had been most beautifully delivered and put together, and he must thank Mr. Hunting exceedingly for his kindness in coming there, and for the interesting and kindly address he had given them.

Mr. BARFORD also thanked Mr. Hunting for the manner in which he had been kind enough to come down, and the most interesting address he had given them. He agreed with Mr. Hunting that they had not been recognised as they should have been, but it was gradually coming. To a certain extent, they had only got themselves to thank; but they must put themselves forward, as Mr. Hunting had said. He thanked Mr. Hunting personally for making such kind remarks respecting his late father, for which he was ex-

ceedingly obliged. His late father did all he possibly could as a veterinary surgeon, and with regard to taking part in everything he could to move the veterinary profession onwards. He could not say more, but thanked Mr. Hunting for taking the trouble he had to give them such a capital address.

Mr. HALL expressed his thanks to Mr. Hunting for the very able address he had given them.

Mr. SIMPSON desired to join in the thanks given to Mr. Hunting for coming amongst them and giving them a most interesting, and one might say novel, address. The advantage of asking Mr. Hunting to come amongst them was that he had the happy knack of stringing facts together. Individual facts were not impressive, but collected in the way Mr. Hunting had collected them they became impressive. He understood Mr. Hunting to say that when a veterinary surgeon was appointed as meat inspector the profession congratulated itself at the time such a move had been made, but it was a nine days wonder, and very soon forgotten; but when they heard facts, such as had been given by Mr. Hunting, strung together, undoubtedly they became impressive, and reminded the profession of the great use the veterinary surgeon was to the British public. He had also demonstrated that it was possible to be a specialist without being a useless man in other directions. The argument had been used in other quarters that it was possible to have veterinary surgeons the best the world could produce, who might be incompetent as administrators, they were given the examining of men eminent in the profession, and brought these up good administrators and admirable men in the management of studs and dairies, and in connection with the advice generally looked for now from trusted veterinary surgeons in large towns. With regard to meat inspectors, referred to by Mr. Hunting, he did not think that gentleman attached so much importance to the necessity of having veterinary surgeons to act as meat inspection as he (the speaker) did; but he agreed with him entirely in the fact he referred to—that the veterinary surgeon was the man most calculated to make the best meat inspector. What was meat inspection? Simply making a *post-mortem* examination, and the veterinary surgeon was surely in the best position to make the *post-mortem*, certainly better than the medical man or the sanitary inspector, because the veterinary surgeon from an inspection of meat was frequently able to say not only that it was unfit for human food, but able to say from what disease the animal actually suffered. It was common knowledge that evidence given before magistrates when they were called upon to condemn meat was to hear it simply described as flabby and watery, but the veternary surgeon if called upon to give evidence in such a case would be able give evidence in a more scientific way. Again he should like to thank Mr. Hunting for coming and giving not only an instructive paper, but one which had broken through the monotony of what might be called purely professional papers.

Mr. GOULD apologised for not attending earlier, and expressed his belief that when the inspection of meat was not entrusted to veterinary surgeons it was only due to the laxity of the profession. If they went in for these things they would get the appointment, and there was no doubt all these appointments should be filled by qualified veterinary surgeons, who should be called in in case of disease or anything being suspected.

The SECRETARY wished to add his vote of thanks to Mr. Hunting for coming there and entertaining them in the manner he had done. He had given them a few hints which should be valuable to them. They administered their laws well in the borough of Southampton, and Mr. Gould's handwriting was well known there, and that showed what could be done by keeping themselves well before the authorities. He was the oldest veterinary inspector in Hampshire, and by far the busiest. The paper they had heard was a capital one, and there had been no abuse in the paper or discussion.

Mr. CARTER endorsed all that had been said with regard to the excellent paper. In his borough he been inspector many years past—since the borough took the work upon itself, and he was sure they had always got on remarkably well. He had handled some thousands of cases, and nothing occurred in the borough but what he knew of it, and if anything occurred they were pleased to see him and to follow out his instructions. Individually he was very pleased with the paper.

Mr. TUTT stated that he could only add that he was extremely obliged for the interesting paper.

Mr. HUNTING intimated that he did not wish to reply on the discussion, and The CHAIRMAN said this concluded the business.

Mr. BARFORD proposed that the rule as to the meetings be suspended, and that the next one be held at Reading in August, on the occasion of the meeting there of the National Veterinary Association, and this was agreed to.

Mr. BARFORD proposed a vote of thanks to the PRESIDENT for presiding, and especially as he had assented to fill the chair for another year.

Mr. GOULD seconded the proposition, which was carried by acclamation.

The CHAIRMAN briefly returned thanks, and this concluded the proceedings.

Subsequently the members dined together in the hotel.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

AN ordinary general meeting was held at the Royal College of Veterinary Surgeons, 10, Red Lion Square, on Thursday night, the 1st inst., Lieut.-Col. J. Kettle, the President, occupying the chair.

The attendance numbered forty-six gentlemen, viz. :—forty-one Fellows of the Society, and five visitors.

The Public Health (Scotland) Bill.

Captain NUNN said that as probably some of the Fellows had not seen the print of this Bill, he had brought a copy with him, which he handed in. The objectionable clauses, so far as the veterinary profession was concerned, were clauses 40 and 57, both of which were a verbatim transcript from clauses embodied in the Public Health (London) Act, 1891. These clauses having been operative for six years, and London medical men having performed the duties which the clauses assigned to them without complaint, it appeared to him that if they were now to demur to the insertion of the clauses in the Public Health (Scotland) Bill, the answer would be interrogatory: Do you mean to say that the Scotch medical men are not as competent to perform these duties as their London brethren? It appeared to him that their rejoinder could only be that it was undesirable to re-enact these clauses in a Scotch measure because certain miscarriages or mistakes had been made. But the only mistake he could call to mind was the well-known Hendon case.

Professor MACQUEEN desired to direct the attention of the Council of the Royal College of Veterinary Surgeons to what appeared to him to be an oversight on their part. He believed that that was the first time that attention had been directed to the fact that the objectionable clauses embodied in the Public Health (London) Act, which it was now proposed to re-enact in the Public Health (Scotland) Bill, had been originally introduced without apparently attracting the notice of the Council of the Royal College of Veterinary Surgeons. In the case of other corporate bodies he believed that they had usually some officer—a solicitor or other person—whose duty it was to watch parliamentary procedure with a view to the protection of the interests of the bodies they represented. It seemed to him that a similar function might well be exercised by the solicitor to the Royal College of Veterinary Surgeons. As there were two members of the Council

of the College present it might be sufficient to call their attention to this matter. He had watched the discussion which had occurred in various places regarding the Public Health (Scotland) Bill, but he had never seen any reference made to the Public Health (London) Act, 1891, and yet, according to Captain Nunn, one of the clauses, at least of the former measure, was a direct transcript of a provision contained in the latter, which had apparently escaped observation at the time the Bill was passing through Parliament. He would even go the length of suggesting that the Secretary of that Society should be instructed to communicate with the Council of the Royal College of Veterinary Surgeons, directing their attention to an omission which seemed to indicate that the Council were hardly up to date.

Professor PENBERTHY: I should like to ask Professor Macqueen what the effect of drawing the attention of the Council to the oversight is likely to be. The Council are perfectly well aware that the objectionable clauses of the Scotch Bill formed part of the Public Health (London) Act, 1891.

Professor MACQUEEN: My object in making the remark is this, the Parliamentary Committee of the Council of the Royal College in 1891 could not have drawn attention to these objectionable clauses in 1891; and, as we did not oppose them in 1891 when they were included in the Public Health (London) Act, 1891, what can we say now when it is proposed to embody them in the Public Health (Scotland) Bill? All we can say is that the clauses were allowed to pass unopposed because of their being overlooked. My suggestion is that the Council should so arrange their business that omissions of this kind shall not occur in the future. Prof. Penberthy can, perhaps, tell us whether any objection was taken to the clauses when the Public Health (London) Act was before Parliament in 1891.

Professor PENBERTHY: If that is meant for a vote of censure upon the Council of the Royal College of Veterinary Surgeons, all I can say is that I cannot trust my memory as to what occurred in 1891. I was not a member of the Parliamentary Committee of the Council in that year.

Mr. BARRETT said that there was no oversight on the part of the Council in 1891, as many members of that Council knew the nature of the Public Health (London) Act, so far as it affected the veterinary profession. As to the action of the Parliamentary Committee of the Council in 1891, he was unable to speak. He was rather inclined to think that there was no Parliamentary Committee then, but that that committee was the creation of a a later date—not more, perhaps, than two or three years ago. He inferred from the speech which Professor Macqueen made a few days before at the Council meeting of that Society, that he did not think there was much to object to in the Public Health (Scotland) Blll. Captain Nunn had referred to the Hendon case, but in his (Mr. Barrett's) opinion the mistake committed there had nothing whatever to do with the present Bill, as the Public Health (Scotland) Bill provided for the examination of animals for meat purposes and not for inspection in cow-sheds, etc. No opinion as to the presence of health or disease in animals could be given without a veterinary officer was consulted. The medical officer could simply say whether food was fit for human consumption, but could not pronounce an opinion as to the health or otherwise of the stock in question. He suggested that that Society should embody their views in a resolution to be submitted to the Council of the Royal College of Veterinary Surgeons.

The CHAIRMAN explained that, consequent upon the receipt of a circular from the President of the Royal College of Veterinary Surgeons, calling attention to those clauses of the Public Health (Scotland) Bill affecting the veterinary profession, he called a special meeting of the Council of that Society to consider the matter, He deemed the matter of importance, although, as a member of the Army Veterinary Department, he did not quite understand

how serious they, as civilian practitioners, might consider the matter. On the 15th ultimo, a circular was issued convening a special meeting of the Council of the Society for the 18th following, "to consider a subject of vital interest to us as a profession, viz., the Public Health (Scotland) Bill, which has been introduced into the House of Commons by the Lord Advocate, Mr. Balfour and Mr. Anstruther, and is now in course of second reading." The meeting was held on the 18th ult., at which the following resolution was adopted on the motion of Professor J. Penberthy, seconded by Professor Macqueen:—"That though the Council of the Central Veterinary Medical Society does not feel that its action is likely to have any special effect, it would urge every Fellow of the Society to use all means at his disposal to prevent the passing of the objectionable clauses in the Public Health (Scotland) Bill."

Professor MACQUEEN: I should like to propose a resolution, but I am not sufficiently aware of what transpired in 1891 to justify me in so doing. If I were certain that the Council of the Royal College of Veterinary Surgeons did not take any action against the passing of the Public Health (London) Act, so far as it affected our profession, I should certainly propose a resolution drawing attention to this act of omission on the part of the Council, and suggesting that greater vigilance should be exercised in future in regard to proposed legislation involving the interests of the veterinary profession. With regard to what Mr. Barrett said, I would remind him that my remarks were mainly directed to what I was under the impression was an oversight in allowing these objectionable clauses to pass unopposed when the 1891 Bill was before Parliament.

The CHAIRMAN thought it would be a pity, after the discussion which had taken place, that some resolution should not then be passed embodying the expression of their collective opinion for the information, if not the guidance, of the Council of the Royal College and the profession at large.

Mr. BARRETT said he had misunderstood Professor Macqueen. He understood him to refer to an oversight at the present time, and not to an omission in 1891.

The CHAIRMAN: I think it is of great importance that some action should be taken at the present time, and that we should not repeat the sin of omission in 1891—if an omission or oversight was made then. Of course I press this upon you not from the point of view of feeling personally interested because, not being a civilian practitioner, the matter really does not affect me.

No resolution was, however, submitted; and the meeting passed to the next business.

Veterinarians and the Queen's Diamond Jubilee.—A Commemoration Project.

Mr. BARRETT: I wish to ask if the matter of commemorating in some way the Queen's Diamond Jubilee has been considered at all. Several members of the profession have suggested that something should be done by us as a Society, either in instituting a scholarship or subscribing to a veterinary defence or benevolent fund.

The CHAIRMAN: I have, indeed, thought very seriously on the subject, but I think it is for you to make a proposition.

Mr. UPTON said he had written a letter to *The Veterinary Record* suggesting that the best way of celebrating the Queen's Jubilee was by providing a benevolent fund. He did not at all approve the idea of founding a scholarship. He thought their charity should begin at home.

Professor MACQUEEN said he should object to any money being voted from the funds of that Society for the purpose of celebrating the jubilee and for the benefit of posterity, but as a Society he had no doubt they would be glad to receive any contributions for this object.

Mr. UPTON: I don't want the Society to give any money.

Professor MACQUEEN: I am very glad to hear it.

Mr. UPTON: It seems to me that you don't know how to spend the money you have got now. It is not very profitable to invest it in consols.

Mr. BUTTERS agreed with Mr. Upton that they should raise a benevolent fund for the benefit of posterity. As they had inherited the fruits of the good efforts of their professional ancestors, so it behoved them of the present generation to remember posterity, and to hand down to their successors—strengthened and improved—those institutions which they owed to the wise foresight, activity, and liberality of their predecessors. Among those institutions was that Royal College of Veterinary Surgeons, which they found equipped and at their service.

Mr. WALPOLE suggested that members should give individually towards some benevolent fund in which, in case of need, every veterinary surgeon should be entitled to participate. He mentioned incidentally that Sir Walter Gilbey had projected a farmers' benevolent fund as one method of celebrating the Queen's long reign.

Mr. DOWELL objected to their contributing to a farmers' benevolent relief fund.

Mr. UPTON: I don't say anything about farmers. I say charity begins at home, and let us subscribe to a benevolent fund for our own distressed professional brethren.

Mr. PRUDAMES moved "That the Council be asked to call a meeting to consider what steps (if any) can taken to commemorate the Queen's Diamond Jubilee; and, if practicable, to vote a sum as a nucleus of a general fund to be added to the resources of the benevolent Society now in existence." He agreed with other speakers that charity should begin at home; and, as other professions were seeking to commemorate the Queen's reign by some special benefit to their own class, he did not see why veterinarians should not follow so good an example. They could not better commemorate the Queen's auspicious reign than by providing for the needy of their own profession, and for their widows and orphans.

Professor PENBERTHY asked if any one present understood the working of the present Veterinary Benevolent Society. He confessed that he did not. Supposing they voted a sum of money to commemorate the Queen's reign, his desire would be that they should vote it to some society whose benevolence was general. Hence he wished to know whether the Veterinary Benevolent Society was open to the poorer members of the veterinary profession as a whole, or whether its benefits were merely limited to those who had subscribed. Personally he did not understand the organisation to which they were asked to contribute. If they had money to spare he did not think they could celebrate the Diamond Jubilee better than by voting it to a benevolent object, but before he assented to this he was desirous of knowing something of the arrangements of the organisation which they were invited to support.

Mr. BUTTERS, speaking as a member of the Council of the Veterinary Benevolent Society, said that that Society had in the past been rather conservative in its action. It was now in a transition stage, however, and was endeavouring to work upon lines which would enlarge its borders and render all members of the veterinary profession eligible to its benefits, whether members of the Society or not.

Professor PENBERTHY: Is that the fact?

Mr. BUTTERS: It is a fact that the Society is in the transition stage I have described.

Professor MACQUEEN: I propose as an amendment that all the words of the resolution be deleted after the words "general fund" and the word "benevolent" be inserted between the words "general" and "fund," so that the resolution will run:—"That the Council be asked to call a meeting to

consider what steps (if any) can be taken to commemorate the Queen's Diamond Jubilee: and, if practicable, to vote a sum as a nucleus of a general benevolent fund." I will give you my reasons for asking you to accept my amendment. Notwithstanding the remarks that have fallen from Mr. Butters, I object to the money of this Society being contributed to what I consider is a private association. The Manchester Society is not a society for the benefit of the profession in spite of what Mr. Butters has stated. The Manchester Society is only benevolent to those who subscribe to it, or only affords relief in cases that are considered favourably. If you are desirous of aiding a benevolent Society—and personally I am in favour of the proposal—let us help only one to which any indigent member of the profession may apply, whether he has subscribed to its funds or not. So long as the society, which has its location and headquarters in Manchester confines its bounty to its own members, so long shall I object to the Central Veterinary Medical Society contributing to it. Let us select some other society. The Manchester Society has no doubt an inclination to extend its boundaries and to enlarge its sympathies and so forth. But the mills of God grind slowly, and they do not grind any faster at Manchester, and until the good intentions of this Society are translated into acts I, for one, would decline to vote any money towards its funds. Many years may elapse before the reforms referred to by Mr. Butters are effected. Although the Manchester Society has already a large sum at its disposal, it is not yet known that they will utilise it for the benefit of members of the profession generally.

Mr. BARRETT seconded the amendment, which was carried by 20 votes to 2.

Professor PRITCHARD, F.C.S., read the following paper on "Lameness Arising from Affections in the Regions of the Shoulder and Hip Joints":—

MR. PRESIDENT AND GENTLEMEN,—In selecting the subject that I have for a few minutes' conversation this evening, my object really is—I may tell you at once—to endeavour to impress, so far as I think, a correct idea upon the minds of veterinary surgeons that many cases of lameness which we are inclined to attribute to injuries to the tendons and muscles, are due very frequently to the synovial membranes. Some years ago, when lecturing on the subject of shoulder and hip lamenesses, I endeavoured to impress on the members of a veterinary society that I attributed it entirely to pain of that portion of the synovial membrane placed between the *check ligament* at the back of the hock and the tendon which runs down the back of the hock, and from then until now I have not met with—although it was to an extent an original idea—a fair contradiction to my theory. And I believed, and believe now, that the pathology of curb is that and that alone. I believed that sprained tendon of the fore leg instead of its being absolutely sprain of the tendon (by which I understood, and which is generally understood, as a partial rupture of the perforans, or rupture of some of the flexor tendons or ligaments), I believed and showed that this idea retained in many minds to some considerable extent as to sprained tendon, is in fact in ninety-nine cases of a hundred, nothing more or less than injury to the synovial membranes, which we find there between the tendon and the suspensory, or between the so-called check ligament, a name I never did like, but which is generally known as check ligament, but used to be called sub-carpal. I say the synovial membrane between that and the flexor tendon. I think if recourse were had to that microscopic examination, which is so fashionable at the present time, with reference to this lesion of the fore leg commonly spoken of as sprained tendon, it would be found that the tendon was absolutely unaffected, was, in fact, in its original pristine condition, and that the whole of the disease was located in the synovial membrane, either between the two tendons, the flexor tendon, and the ligament. To-night I shall throw down the gauntlet in the hope that it will lead to a good discussion, and I ask you in all honesty to

contradict me as far as you can so long as you bring to bear fair argument Now, I will begin with the shoulder joint. It is unnecessary for me to tell you that this joint is formed by two bones, the lower portion of the scapula and the upper extremity of the humerus. Nor is it necessary for me to tell you that, unlike most of the joints of the body, these two bones are held together mainly by the tendons or muscles, and not by what is usually called connecting ligaments. In fact, there is only one ligament in connection with the shoulder joint of a horse, and that is the so-called capsular. But passing over the front of the joint we have the strong tendon of the biceps; on the outer side of the joint we have the tendons of the two spinata muscles. On the inner side is the strong tendon of the subscapularis; all these tendons and muscles assist in holding together the two bones. They are so glued together by means of the tendons of these muscles that I think I have good grounds for saying, perhaps, no two bones in the whole body are held together with more security than the two bones to which I allude. Well, now, I am at one with those who assert that shoulder lameness is of rare occurrence. Compared with other cases of lameness of the fore limb, I think we are perfectly justified in saying it is of very rare occurrence. For one case of shoulder lameness happening to horses in London I think we see 75, if not a greater percentage, of lameness in splint; and when we take into consideration other cases of lameness of the fore limb, I repeat we are perfectly justified in saying that lameness of the shoulder, or shoulder lameness, is of rare occurrence. But when I say that, I will go a little further, and say that lameness arising from injury to the shoulder joint is of much rarer occurrence than lameness affecting structures in the vicinity of the shoulder joint. Now, I am not going to create, or attempt to create, to-night an argument as to what we understand by the word lameness. You know we have heard of mechanical lameness, and a good deal has been written and said about mechanical lameness. I used the word lameness in its fullest sense, in the sense taught us in our early days, when lameness was comprehended as the language of pain. When I speak of lameness to-night I mean that the animal is affected with pain of some kind or other when it is lame. To be a good judge of lameness is one of the greatest acquisitions of the veterinary surgeon. I speak of the ability of the veterinary surgeon to recognise something in the action of the animal which enables him to form a pretty clear notion, without other assistance, as to where the seat of the lameness is. He must know whether the animal is lame when the weight bears on the limb or whether he is lame when in action. To my mind that is the first thing a judge of lameness has to acquire. Shoulder lameness! Everybody has it on the tip of his tongue, everybody thinks that when a horse is lame in his shoulder, he shows it in his action. And in ninety-nine cases out of a hundred that conclusion is a correct one, but I very much question whether, if the animal is absolutely lame in the shoulder-joint, that lameness would be shown in action. It would rather be shown when the weight is placed upon the limb. That is a point for your consideration and discussion. I simply throw out the idea. I have my reasons for making the remark, and I think I shall be able to back it when discussion on the point arises. If I am correct in my idea that when an animal is lame in the shoulder the lameness is from some of the structures round the joint and not from the joint itself, then I say the lameness will be exhibited in the motion of the limb. Well, now (referring to diagram), what have we in the region of this joint which should give rise to lameness? Passing over the front of the groove on the head of humerus, we have got this large powerful muscle which is called flexor; the tendon on the upper extremity of which has, entering into its formation, a quantity of cartilaginous cells, and such a quantity of these cells as to give it an amount of solidity that no other tendon

in the horse's body possesses. You read in books that this muscle is liable to ossification, and I have seen specimens where a portion of it has become ossified. I have, too, seen specimens where the whole structure of the flexor brachii has been converted into bone. You will read that the ossification of this muscle is due to the fact of the muscle being largely composed of white fibrous tissue of tendon structure. In my opinion, it is due to nothiug of the kind. There are plenty of muscles in the body loaded with white fibrous tissue. Perhaps at this moment we cannot give a better example than the masseter on the side of the face which is loaded with white fibres. My opinion why ossification more frequently happens to this muscle than to others is that the result is due to the cartilaginous cells. As it passes over there (illustrating by reference to diagram) to allow of the movement of this muscle over the front of that part of the bone, it is lubricated with synovia. There is here (reference to diagram) a large synovial sac, one of the grandest examples of bursæ in the whole body ; sac placed between the bone and the tendon to allow the tendon to play over it without anything like friction ; and this, in my opinion, is one of the seats of lameness which is, perhaps, as frequently occurring as any lameness that arises from injury to any part of the shoulder joint. That is one structure, an injury to which I consider one of the causes, and a frequent cause, of shoulder lameness. I am obliged to an artist who is present for having assisted me by the production of the exhibited diagrams, to one of which I will again direct your attention. If you look here (pointing) you will see, on the muscle running down the back of the spine of the scapula, a muscle which we call, from its relative position to the spine, the posterior spinatus. Now, it passes down the back of the bone, over the external surface of the shoulder joint, and this tendon is partially implanted just where the position of my stick indicates, and a portion is continued on and inserted in this ridge which runs down the outer part of the head of the humerus. Between the insertion of the first portion of the tendon and the insertion of the second portion opposite this eminence (indicating) there is another large bursa, and that, in my opinion, is another seat of lameness in the region of the shoulder joint. I have already thrown down a sort of challenge as to the cause of lameness not being located in the joint itself. I told you that, in my opinion, in many instances the lameness has its seat in the bursæ, between the upper extremity of the humerus and the tendon of the flexor brachii. I now tell you that another seat of lameness of this joint is between the first and second insertions of the tendon of the posterior spinatus. In the one, that is to say, when the injury exists in the bursæ between the flexor tendon and the head of the humerus, the animal in endeavouring to walk will turn the limb outwards. That, in my opinion, is the diagnostic symptom of injury to that particular seat. Then we have the bursæ between the first and the second cords of the tendon of the posterior spinatus. Then there is exhibited inability to bring the limbs forward together. So long as the bursæ in connection with the posterior spinatus is in a state of health, and the injury is to the bursæ between the upper extremity of the flexor and the head of the humerus, then the motion will be outwards, but if the bursæ between the two portions of the posterior spinatus is injured, or if the two bursæ are in a state of inflammation, then there is a difficulty in bringing the limb forward. There is an inability to a certain extent, an incapability to a certain extent, to bring the limb forward. Some of you may be inclined to ask the question, How do you know the difference between this and normal lameness in the knee? By an experienced eye the difference is easily detected. The animal is incapable of bending the knee properly, but the horse can bring the limb forward properly. An animal that is lame in the shoulder cannot flex the knee, but an animal that is lame in the knee not only cannot flex it properly but is incapa-

ble of bringing the whole of the limb forward. I have thrown out sufficient, I think, for your discussion on that subject. I will now pass to the other. I have a diagram here representing that portion of the skeleton which forms the hip joint. Here (pointing) we have the pelvic bones, here the ilium, and this is the femur. Some of the muscles are partly closing this ossified structure. I wish more particularly to draw your attention to this large muscle, called the gluteus maximus. The gluteus externus is supposed to have been removed for better exposure. Here (pointing) we have a different joint altogether. This is a section of the hip joint formed on one side by the ilium and on the other by the femur. This is a specimen of the ball and socket joint of the horse's skeleton. The cavity in which the head of the femur is placed, called the acetabulum, is deepened by ligaments attached to the margin of it; but instead of the bone being held in this position (illustrative reference), as in the case of the forearm and the shoulder, by means of the tendons of muscles, we have here some strong connecting ligaments so-called. We have various causes giving rise to lameness in the hip joint. Hip joint lameness is, as I have before remarked, of more frequent occurrence than joint lameness with regard to the shoulder. It is not at all uncommon for us to meet with cases of fracture extending into and involving the hip-joint and, of course, giving rise to hip joint lameness; but I have seen some cases where it is extraordinary how much the region near the joint has been involved without lameness absolutely being noticed at all. Now I have a specimen on the table here which illustrates what I have just said. You see I have got here a portion of the horse's pelvis with a fracture on one side. I know something of the history of this case. This animal some years ago had a bad fall, but beyond being laid up for a few days, and beyond the lameness being exhibited for those few days, no idea was ever created in the minds of the three veterinary surgeons who examined the animal that any fracture of the pelvis had taken place; and after the animal had rested a few days all appearances of lameness passed off and it was put to work again. The horse was an unfortunate one. Some years after this—it must have been years as you see by the reparative process that must have gone on meanwhile—the animal met with another accident on asphalte. It fractured its pelvis a second time, and for that reason was destroyed, the fracture existing just partially where I indicate, in close proximity to the hip joint. Yet after a few days no lameness at all was noticed. But we have cases of lameness involving the hip joint where the pain is most marked. We have cases where the head of the femur is turned from the shaft—the last may be noticed by the symptoms of the extraordinary prominence in the upper part of the hip, which appears soon after the fracture has taken place. I have met with cases in young animals where the protuberance on the upper extremity of the femur is torn off by the violent muscular action, and we have cases of fracture of the pelvis involving the cup, giving also indications of severe pain of lameness, but these are exceptions to the rule, as to the causes which give rise to hip lameness. You see here (reference to diagram) represented the upper extremity of the trochanter posterior prominence, and you see here the other portion of the trochanter major, which in life is coated with fibro-cartilage and with this large muscle. I want more particularly to draw your attention to the horse's quarter, the gluteus maximus, a portion of tendon which is planted in this part of the trochanter major, and part of the muscle is continued on from this and is implanted where I now point. A large portion of that tendon, as represented here, passes over this part of the trochanter major, and is implanted into the bone where I indicate. Now, between that portion of the tendon and this prominence is the large synovial bursa, and this, in my opinion, is, in the large majority of cases, the seat of hip lameness. It is not necessary for me to enter upon a description

of hip lameness beyond telling you that, perhaps, the negative symptoms are really more important in hip lameness than in anything probably which you can call diagnostic. When I say negative symptoms, I mean the absence of any other cause that is likely to give rise to lameness. We all know that it an animal is lame in the hock, from the pathological conditions of the tendons at the back of the limb, that such lameness is indicated by the animal going upon his toe. Therefore, if we find an animal lame behind and which places its foot flat on the ground, we have done with the hock and tendon structures at the back of the limb. For we all know, or should know, that if an animal is lame there is an inability to bring the limb forward in the ordinary manner. Also if an animal is lame in the front of its foot in the region of its coronet, and in some structures involving the lower portion of the limb as to the front, we all know that the animal has a gait the exact reverse of what we find in hock lameness. Instead, in that case, of there being an inability to bring the limb forward, the animal absolutely places the limb under its belly as far as it can get it. There are negative symptoms which should guide us in coming to a conclusion whether an animal is lame or not. As to positive symptoms, you will notice when an animal is in motion, whether walking, trotting, or cantering, as may be deemed necessary in exercise, it will make use only of the upper portion of the limb. I am speaking here only of cases of lameness of the hip of recent date. In long-standing cases we should probably get wasting of the muscles of the quarters. Not that this is always indicative of lameness in that situation. Nor is wasting of the muscles of the shoulder indicative of shoulder lameness. We must not rush to the conclusion that an atrophied condition in the region of the hip joint or shoulder joint is symptomatic of the presence there of the cause of lameness. I hold that in cases which happened yesterday, and upon which one is called upon to-day to say whether an animal is suffering from hip lameness, the negative symptoms are as useful to present diagnosis as positive symptoms. If you want my opinion as to the positive symptoms which can be absolutely seen, I would instance the inability of a horse to turn round, to rotate its limbs as it would be able to do if the animal was not suffering from some injury or affection in the region of the hip joint. After giving other instances, Professor Pritchard added: — I shall not detain you any longer. I have simply brought forward these few ideas for your consideration. They may be all wrong, but I have enunciated them, as I said at the outset, with a view to evoke discussion, and, if I succeed in that, I shall have succeeded in my purpose, I am much obliged to you for the attention you have paid me.

On the motion of the CHAIRMAN, seconded by Professor MACQUEEN, it was then decided to prolong the meeting until half-past nine, half-an-hour beyond the usual closing time.

The Discussion.

Professor MACQUEEN: Mr. Chairman and Gentlemen, this is a particular subject, hip lameness and shoulder lameness, and I am very glad indeed that Professor Pritchard expressed himself in such magnanimous terms when he commenced his address. I have very great pleasure in accepting the gauntlet he so magnanimously threw down. He rather encouraged discussion, and also, I think, criticism, because he seemed to think that he had come amongst us with the intention of telling us something that was new. (Professor Pritchard: No, no. I said the very reverse.) Now, the chief point made by Professor Pritchard in his introduction was regarding the existence of the synovial membranes which he calls bursa. Bursa, according to my interpretation of Professor Pritchard's remarks, appear very much like the white sheet that was sent down from heaven to Peter. But I remember a time—

and I daresay Professor Pritchard remembers the time very well—when he was not so strong upon bursa. I remember an occasion, about ten years ago, when there was a law suit, and one of the questions turned upon the existence or non-existence of synovial bursa. At that time our friend did not attach so much importance to bursa. Well, now I return to the question before the meeting, and I must crave the indulgence of the members and of Professor Pritchard in particular, if I misinterpret the title of his address, "Lameness arising from affections in the region of the shoulder and hip joints." In order to enable me to discuss the address as I think necessary, I should make a preliminary remark. If Professor Pritchard has no objection, I should like to refer to what he alluded to as some of the shoulder lamenesses. Professor Pritchard confined his remarks upon shoulder lameness almost entirely to injuries to the bursa of the flexor brachii. But he did not enlighten us how to distinguish that lameness from injury to the bursa of the spinata muscles or the main joint. In the shoulder joint there is more than one bursa, as Professor Pritchard no doubt knows, and why he concentrated his attention upon this particular bursa I fail to understand; and I must go further, and say that I fail to gather any information from his remarks. I do not deny that such kind of lameness does occur in the horse, and I must say that I agree with him as to the frequency of shoulder lameness. Shoulder join lameness is of very rare occurrence, and lameness in the shoulder affecting structures in the neighbourhood of the shoulder joint is not of such rare occurrence. But I will say that it is not so frequently due to injury to the posterior spinata bursa. I am inclined to think that shoulder lameness that is met with is usually due to the nerves and subsequently to their paralysis; and I think we are indebted to German and French discoverers for a great many suggestions regarding lameness of the upper regions of both limbs, both fore and hind. I must say that I was rather disappointed with Professor Pritchard's remarks upon the shoulder. I really thought he would extend his consideration considerably beyond the posterior spinatus bursa and would enlighten us upon the various affections of the shoulder, particularly that one which is called shoulder slip, or paralysis of the extensor muscles of the shoulder.

(*To be continued.*)

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

(*Continued from page* 267.)

An Animal Ambulance.

At this stage an adjournment was made to Rose Street Lane, where an opportunity was afforded of witnessing an animal ambulance which had been purchased by the corporation for the purpose specially of removing horses which had sustained accidents in the streets. Principal Williams stated that the ambulance had arrived at the college that morning, and they had given it a trial. He thought it would serve the purpose admirably well. They could get a horse into it quite comfortably and with very little trouble. All the members expressed themselves highly satisfied with the appearance of the ambulance.

Louping Ill.

On returning to the hotel, Principal Williams gave a lantern demonstration on the life history of louping-ill organisms, and also the organism of the Jamaica cattle disease. He explained that, owing to the illness of Dr. Hunter, he was unable to show as many photographs as he had intended. For a great number of years he had been investigating the nature of the disease called louping-ill. As far back as 1882 he came to the con-

clusion that it was due to an organism injected into the blood of the sheep. It got into the nervous system, and produced symptoms similar to intoxication, which, in some parts of the country, was called trembling. In its acute stage the symptoms were very similar to those of a person suffering from *delirium tremens*. The Principal then threw upon the screen ten slides showing very well marked cultivations of the disease. He also showed one slide with a cultivation of the Jamaica disease organism. He explained that it was a most peculiar organism, and its exact position in the animal kingdom they had not settled upon. This organism was found, not only in the blood, but also in the blood corpuscles. He said he had been accused of making a mistake with regard to the Jamaica disease, but the specimens which he had shown to his colleagues convinced them that he had made no mistake. The disease, he still maintained, was due to the inoculation of the ticks, which sucked away the blood, and produced that condition of anæmia, which was so characteristic of the fever. There was scarcely a beast in the whole of Jamaica that was free from the attacks of ticks. Most of them had several thousand ticks upon their bodies.

Place of Summer Meeting.

Consideration was next given as to where the summer meeting of the Society should take place.

Principal WILLIAMS suggested that the meeting might be held at Glasgow during the week of the Highland Society's Show.

Professor M'LAUCHLAN YOUNG, Aberdeen, said he had a "cordial" invitation to extend to the Society to come as far North as Aberdeen. Last year the North of Scotland Veterinary Society was resuscitated, and he was glad to be able to inform them that the Society was now in a flourishing condition. They had a meeting in January, when there was an attendance of between thirty and forty. The Metropolitan had already gone to Glasgow and helped to revive the Society there. He made bold to ask them to come as far North as Aberdeen, and give them a little assistance there. In the North there were a number of old students of Principal Williams, who still had a very strong feeling towards the New Veterinary College. No one would receive a more hearty welcome than their old friend Principal Williams. He singled out the Principal because he was the recognised head of this Society, and with him, of course, would come the Society. Since their last meeting he had asked the use of the Aberdeen University buildings for their meetings, and he had been granted this concession. They were now in future to have all their meetings in the Marischal College, so that if the Society went to Aberdeen they would have the use of the University buildings.

The CHAIRMAN said that no doubt many of the Edinburgh members might be able to go to Aberdeen, but it was rather far away for those who lived in the South. It was a very kind invitation, and Professor Young had offered a great inducement to visit Aberdeen. If the southern contingent would support the Edinburgh members, they might be able to have a very good gathering.

Principal WILLIAMS suggested that possibly the Glasgow Society might join, and they could have a joint excursion to Aberdeen.

The SECRETARY said he had been inclined to propose Forfar as their summer meeting-place. It was very accessible, and there were a large number of veterinary surgeons in that country-side, besides which they had there some very good members of their own Society.

Mr. CAMERON said he had been also inclined to move that their meeting be held at Perth, but he would be willing and delighted to go as far as Aberdeen. He was there last summer, and received a very hearty welcome. He found the Society there was in splendid working order, and they had a good gathering.

Principal WILLIAMS said that seeing the Aberdeen University had given the Society there permission to meet in Marischal College, they should show their appreciation of the privilege by going to Aberdeen.

It was unanimously agreed that the summer meeting should be held at Aberdeen, and to co-operate with the Glasgow Society with the view of having a joint excursion.

Annual Dinner.

The annual dinner of the Society afterwards took place in the hotel, Mr. Boyd occupying the chair.

After the toast of "The Queen" had been duly pledged,

The SECRETARY proposed the toast of "The Lord Provost, Magistrates, and Town Council of Edinburgh," coupled with the names of Principal (and Councillor) Williams and Councillor Cameron. He said that in Edinburgh they were fortunate in having such a practical man at the head of affairs as Lord Provost M'Donald. In the magistrates they had every confidence, and their Town Council seemed to be a very popular body of gentlemen.

Principal WILLIAMS in reply said he rarely spoke in the Council, and he long ago dubbed himself Williams the Silent, and he intended to keep up his name. He proceeded to make a humorous speech, and concluded by saying he had made many happy friends at the Council Chambers.

Councillor CAMERON, who also replied, said they all knew that their friend, the Principal, had been absent for some time from the Council, but he had been doing good work in Jamaica, which would be of great service to the people of that country. The members of the Council were all delighted to see him return in such good health. He proceeded to refer to various measures before the Council for the improvement and better health of the city. With regard to the sanitary condition of the dairies and byres, he could assure them as a member of the Dean of Guild Court that there was not a single stable or byre built which did not receive as much attention as the plans for the best structure in the city. These stable and byres must have proper drainage and ventilation, and he was perfectly certain that any measure to improve the conditions of their dairies and byres would meet with hearty response at the hands of the architectural profession. With regard to the Public Health (Scotland) Bill, he remarked that some of its details could not possibly meet with the approval of the veterinary profession. He referred particularly to the relative positions in which the medical officers of health and members of the veterinary profession had been placed in some clauses of the Bill. He thought it would be better if the local authority instructed any member of the veterinary profession to report on the condition of cattle and present a report on the subject, and leave the medical officer of health to be responsible solely for his own part of the work. What was proposed in the Bill was unfair to the veterinary profession, and unfair to the general interests of public health. He hoped their Society would make a strong endeavour, both on their own account and on account of their professional brethren all over Scotland, to have these obnoxious clauses put right.

Professor M'LAUCHLAN YOUNG, Aberdeen, proposed the toast of "the Council of the Royal College of Veterinary Surgeons." He said he felt perfectly confident that if they made their influence felt throughout the country, they would not long fail to command the respect, and perhaps he might go the length of saying, the position which they, from their professional training and knowledge, were entitled to. In the Bill before Parliament, their position had been rather minimised, but he felt to a certain extent they had themselves to blame, because they had been rather backward in taking their proper position among the learned professions of the country.

Professor W. O. WILLIAMS, in reply, said that not long ago he attended a meeting, and he heard complaints from members of the profession that the Council seemed to be almost a close corporation, that their work seemed to be done in private, and that letters sent to them were seemingly not attended to. The explanation was that they had now got power from the Privy Council to do as they pleased in many matters as, for example, in dealing with those

who were considered guilty of unprofessional conduct. A case was recently referred to the Privy Council, and that body sent back word that whatever was done by the Council they would recognise. This was the most important thing in connection with the profession for many years. Other important points were these: the President and the Council of the Royal College had seen the danger which threatened the veterinary profession if medical officers were allowed to discharge duties which properly devolved on veterinary surgeons. The examiners had emphatically stated that at the next final examination the most important subject would not be the horse, but it would be meat inspection. That would be a demonstration to the public that their profession was doing its very best to turn out men who were thoroughly well qualified to take the position of meat inspectors. From his own point of view he considered the examiners were perfectly right.

Mr. JOHN CAMERON, Berwick-on-Tweed, proposed the toast of "The Teaching Schools." He remarked that one required to keep in touch with the recent fields of discovery which were opened up to the rising generation.

Professor M'CALL, Glasgow, in replying, referred to the efficient state of the various Scotch veterinary schools, but complained of the stiffness of the preliminary examination, which cut down the numbers of the students so greatly that the teachers had often to carry on the work at a considerable loss.

PETER MOIR, *Hon. Secretary.*

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 280.)

REMARKS ON SOME DISEASES OF THE SHEEP DUE TO NEMATODE WORMS.

By Prof. PENBERTHY, F.R.C.V.S., R.V. Coll., Camden Town.

To members of the veterinary profession practising in one of the chief sheep-farming districts of England, indeed of the world, I hope no apology is necessary for introducing a subject connected with this special branch of our work, save that which concerns my temerity in venturing on the task. In reference to this, permit me to say that a material factor in determining my choice was the desire to learn from your great and varied experience. I believe, too, it will be conceded that the study of helminthology, in relation to this class of patient, is not of minor importance; certainly, according to my own observation, the greatest amount of ovine disease is due to animal parasites, and that in certain places sheep-farming is rendered impossible by reason of losses from their attack.

As individual patients, sheep rarely come within the cognizance of the veterinary surgeon, but, as proved by recent events, when disease amongst them assumes considerable dimensions, our services are usually, as a last resource, called into requisition. If such instances are investigated I think we shall find that in the majority parasites are the causal factors of the disease.

During the past season mortalities amongst lambs, attributed to "True Lamb Disease" (so named, I believe, by Professor Simonds) have been very great, and the consequent serious losses of flock-owners in various parts of the kingdom have naturally attracted considerable public attention. It is, however, somewhat surprising to hear the cause of these losses spoken of "as a new disease," as though neither the agricultural nor veterinary communities had any previous experience of the subject, or power to prevent the fatalities. It appears to me that not only the idea of novelty, but the

magnitude of the losses, is due to a disposition to disregard the value of professional knowledge, and to try domestic and quack remedies until many animals have succumbed, and more have become hopelessly affected. When experienced professional men have been called in early, as a rule the loss has not been very heavy. Probably the present depressed state of agriculture may contribute to the false economy of trying to do without professional advice. Annals of agriculture and veterinary literature leave no shadow of doubt as to the frequent occurrence of serious disease of the same nature among our flocks at various times throughout the present century. Undoubtedly there remains much to be learnt concerning details in its causation and means for prevention, but it can only be necessary to appeal to the experience of many here present for proof of similar mortalities having frequently been witnessed within the past forty years.

In 1862 and 1863, the condition was so prevalent in Lincolnshire, that a series of questions was sent to farmers by Professor Simonds. In the *Veterinary Review* for 1862, we read of severe losses in Somerset, Lincolnshire, Oxford, Worcester, Wales, and the Border Counties; while in the next volume (1863), p. 467, it is stated that *Flux* is the most common disease of sheep in Norfolk. In the latter year the *North British Agriculturist* devotes an article to "Disease and excessive mortality" among lambs in Cumberland, Oxford, Berks, Northampton, and Lincolnshire, which faithfully describes "Lamb Disease."

Probably much of the confusion which has arisen is due to the circumstance that various conditions have been included under the head of 'Lamb Disease." It is highly necessary, for us, at least, to use all means at our disposal for considering the several conditions in relation to their causes, rather than for grouping them under a name which has no precise meaning, and which indicates nothing in particular.

From the fact that similar circumstances favour the development and means of access of parasites of various kinds, and at the same time reduce the resisting powers of their hosts, it is not uncommon—indeed, by some it is regarded the rule—that an animal, the subject of parasitism, harbours more than one kind of parasite. It is, however, not always that parasites of the same varieties exist equally in all localities, though experience tells us that frequently worms of different varieties are in association and co-operation in the same animal. In "true lamb disease" such a combination is common, though I do not think it may be said that the combination is constant, or that the same worms are invariably in association.

Though not a rule absolute, observation of a variety of hosts tells us that the effect of parasitic attack are more serious in the young than in the adult. Circumstances may modify this, though debilitated adults may suffer very severely from a number of worms whose effects would not be appreciable in more robust animals. Such a difference in the constitution of the young does not always appear to admit of the difference in effect. It is regarded by some as a consequence of the delicate constitution that in many cases we find mortalities amongst lambs much greater than among sheep in the same situation. We must not, however, forget to make all due allowance for the habits of parasites, for while probably most attack the young and appreciably affect them, others show a decided preference for, and more serious results in, adults. It is essential to remember the fact of finding a worm in a sheep or lamb does not prove that this sheep or lamb is affected with verminous disease. Up to a certain number parasites may exist and, during the life of the animal, give no evidence of their existence, *i.e.*, not produce disease, as we term it, or are capable of appreciating it, while because one lamb of a flock harbours parasites, it does not follow that all his fellows do. As I before remarked, it is only when sheep disease has assumed

the enzöotic form that we hear of it. The value of the individual lamb or sheep is, as a rule, too insignificant to call for the services of a veterinary surgeon. It is, however, probable that to the individual sheep or other animals harbouring worms in small numbers is due the preservation of the parasite, and it may easily be seen how a freshly-purchased animal may, by bringing a few worms from an infested place, be the means of introducing disease into a situation previously free from taint of infection. Indeed, so-called parasitic disease deserves to be considered contagious as truly as that dependent on bacteria, and certainly nothing could be more specific than the cause.

Speaking generally, the cause of parasitic disease in sheep may be regarded as predisposing and exciting, but though to some slight extent, any specially favourable condition on the part of an animal, naturally the host of any particular parasite, may exist, circumstances favouring the life, development, or access of the parasite are in this respect of paramount importance.

It may occasionally happen that by virtue of some special habit of a sheep this individual may be more likely to take in the parasite than the other members of a flock. Among the factors in bringing about parasitic disease in sheep, the season has always been regarded in the first class. From the fact that moisture is usually believed to be conducive of the development of worms, wet seasons are commonly looked on as essential. It will scarcely be disputed that lamb disease is generally most noticed in wet weather. I, however, venture to think that drought sometimes plays an important part. This entails short keep and close feeding, and drives the animals which usually, in moist seasons, gain sufficient water from their young succulent food, to eat older grass and drink standing water, both of which are credited with containing miniature parasites or ova, while shortness of keep often weakens the animal and renders it, perhaps, a more fitting habitat.

A dry spring is often followed by a wet summer, and a dry summer by a wet autumn, and on studying the so-called outbreaks I am disposed to the view that when such conditions exist, as did in 1896, we may fairly look for parasitic disease in most of our patients.

Overstocking has generally been considered dangerous, and particularly grazing lambs after sheep. The danger of this is easily understood when we realise the fact that adult sheep often harbour a few worms, and discharge the ova and embryos without the appearance of any symptoms.

Conditions which favour accumulations of surface water, such as defective drainage, must be considered under this head.

The exciting cause, the parasite, I shall refer to a little further on. It will not be necessary to enter into full details before an assembly whose experience with the affections to be spoken of is so intimate. It may, however, be convenient to state that in a large proportion of cases occurring amongst lambs, certainly in many coming under my own notice, there have been symptoms pointing to affection of the respiratory and digestive organs, symptoms well known to us grouped under the head of "husk" or "hoose," and those of gastritis or gastro-enteritis with diarrhœa, anæmia, rapid emaciation, and debility. The acuteness of the attack varies considerably, as do the number of lambs affected and the mortality. Sometimes the course is rapid, and deaths amount to from 50 to 60 per cent. of the lamb flock. Sometimes the features of husk are more prominent, they are generally earliest, but it has occurred to me that in the fatal cases diarrhœa and wasting predominate.

From perusal of published accounts of the malady this appears to have generally obtained, as far as lambs are concerned, and fixes great importance as to the factor producing the diarrhœa. Though similar conditions may be occasionally found affecting adult sheep they are not usual. The sheep, however, during the existence of lamb disease and at other times, is liable to

fatal affection of the lungs which, until a comparatively recent period, has not been so generally recognised from its etiological point of view. In such cases, after possibly some symptoms referred to husk, or often without any special symptoms, a fatal pneumonia more or less rapidly develops and many sheep may succumb. This has frequently been attributed to exposure, specific microbe diseases, blood poisoning, husk, lamb disease, etc.

From the title chosen for my paper it will be gathered that it will not be attempted to exhaust a subject of such magnitude. I propose to offer a few remarks on some nematode worms which produce disease of lambs and sheep and reside in the respiratory and alimentary systems. At the start it is necessary to state and express regret for the fact, that of the definite conditions essential to the life and development of these worms outside the body of their hosts we know very little. It is not yet proven that the whole cycle of the life of either can be gone through within the lamb. Indeed, experiment and common observation rather indicate the converse, and it is very commonly believed that after passing out of the host it is necessary for the embryo to pass some part of its existence in some other animal. Though Cobbold found embryos of the strongylus filaria in the earthworm, the view of this being an essential condition has not been unanimously accepted by specialists in the matter.

Nematodes are round worms, elongated and slender, with the sexes nearly always separate, each having a digestive tube with two openings.

Strongyles are nematodes with unarmed mouths, the male possessing a caudal bursa sustained by "rays" or "ribs."

The lungs of sheep and lambs are liable to be infested by several species of strongyles, but the more important are the strongylus filaria and the strongylus rufescens, and the changes induced by these worms are familiar to all of us.

Strongylus filaria, the *bronchial strongyle*, a white worm from 1 to 3 or 5 inches in length, whose personal characters are well enough known, is much more commonly found affecting lambs than adult sheep, inducing the characteristic husky cough and other disturbance due to irritation of the bronchial tubes. In the cases of lamb disease which I have investigated during the past 15 years this worm has been the most constant, and I believe generally the most important part has been attributed to its action. That it causes great bronchial irritation, and even death sometimes, I think cannot be doubted. It is, as you will see by examination of the slide under the microscope, ovoviviparous, and each female worm contains myriads of embryos and eggs. It is believed that when the embryos are discharged in large numbers the more serious symptoms are set up, while before this many mature worms may be in the bronchi without serious harm. The several disputed points as to the means by which these worms get into the bronchi I will avoid, as I have no fresh light to throw on this part of the subject. I have never found the strongylus filaria in the stomach or intestines, nor *en voyage* thence to the bronchial tubes. Armitage, in Clater's "Cattle Doctor," enunciates this view, which, I think, is mainly unfortunate, as tending to show that when careful *post-mortem* examination has been made, strongyles have been found in lungs and stomach in fatal cases of husk. To account for the diarrhœa which is so general in this enzöotic form of the disease Professor Simonds, the pioneer of English cattle and ovine pathology, writing in *The Veterinarian* for 1867, says, "the diarrhœa accompanying husk is due to disease of the lungs, preventing them from performing their proper function, viz., the proper decarbonisation of the blood." That diarrhœa is commonly a result of bronchitis and broncho-pneumonia can hardly be admitted to-day, and it is hard to understand how this careful observer could have arrived at this conclusion at the period to which we refer, for writing in the same journal in

1863, he refers to the discovery of small worms in myriads in the abomasum, covering the mucous surface like hairs, which he first named filaria hæmata, and afterwards referred to as strongylus contortus. I think it will be only safe to credit strongylus filaria with such changes as are produced by bronchial or pulmonary irritation, and when diarrhœa is present, to look for something which produces irritation in the alimentary tract.

Strongylus rufescens is a very slender, reddish-brown worm, ¾ to 1½ inches long, which, though occasionally found infesting the bronchial tubes and lungs, and producing serious disease in lambs in conjunction with strongylus filaria, is much more commonly a dangerous parasite of adult sheep. This worm, specimens of which in the adult, embryo and ova state are before you, when in considerable numbers, induces some bronchial irritation, grave changes of lung tissue, pleurisy, and serious mortalities. In fatal cases the lungs are characteristically collapsed in parts varying in size from that of a hemp seed to that of an orange, or larger. If a section of this diseased lung is scraped, and the scraping viewed under the microscope, parts of adult worms, eggs and embryos are seen. It will be observed that the worm is oviparous. The curved tail of the embryo is characteristic. It is believed that in their wanderings the embryos bring about the changes in the lungs. When in large numbers the symptoms are acute, and the course so rapid that death is often spoken of as sudden. In less acute cases, cough, debility, etc., are main features. The bronchial irritation is relatively less than when the strongylus filaria is the chief factor. This parasite was responsible for many deaths in a flock of lambs in the south of Ireland during the autumn of 1895.

In the lungs of sheep it is common to find numerous small nodules about the size of millet seed. Sometimes, indeed oftenest, these are calcareous, and to this condition of lung the name pseudo-tuberculosis has been given. If section of a nodule is made, a worm or part of one is often found in the centre. This has been described by some writers as being several inches in length, and variously called S. rufescens, S. filaria, and the Gordian worm. Certain it is that it is most commonly found on examination of sheep believed to be perfectly healthy. As suggested by McFadyean in a recent number of *The Journal of Comparative Pathology*, the worm inducing these changes is probably neither strongylus filaria nor strongylus rufescens, but from the nature and situation of the lesions it would seem probable that the embryos were carried by the blood stream. It is interesting to notice that Williams mentions having twice found worms in the heart, while in "Neumann's Parasites," folio 632, there is reference to a quotation of Schneider Von Gurlt as to his having found the strongylus micrurens in arterial aneurisms of the cow. Leuchardt refers to embryos of filaria strongylus found by Ebertz. Some years ago I found young worms in various organs of several sheep whose lungs were much affected with pseudo-tuberculosis.

The *Strongylus Paradoxus*, whose ordinary habitat is the bronchi of the pig, has been found in the bronchi of sheep. It is, however, not regarded with much importance.

We now pass to a brief consideration of some nematodes of the stomach and intestines. Refererences to parasites of the bronchi inducing "husk" in sheep are found in writings of the first decade of this century. The first mention of worms in the stomach and intestines that I can find is in *The Veterinarian* of 1832.

In this volume appears the translation of an article by Baron de Reek, in the *Annales de Logelin*, "On the Draconculi of Lambs." Under this title is a fair description of the lamb disease, as occurring in the baron's own celebrated flock, with notes by the editor, and some comments by the editors of *The Veterinarian*. The baron contraverts the older view of the disease being due to eating sand, sorrel, hawkweed, and other plants, and announces

the discovery of worms in great quantity in the stomach, intestines, and lungs. The favourable results of giving turpentine, tar, wormwood, and salt are clearly stated.

One paragraph is worthy of quotation :—"My opinion of the disease now is that the presence of the draconculus in the intestines of lambs, like that of ascarides in children, should be regarded as a usual and natural circumstance, but that their multiplication, the cause of which is not sufficiently known, ought to be regarded (*sit venia verbo*) as the disease of the infancy of the sheep; that the cough and diarrhœa should not be considered as separate and occasional maladies, but as accompanying this; that loss of appetite, emaciation, and frequent death are the inevitable consequence. That spirit of turpentine is the specific remedy." At this date Youatt was one of the editors of *The Veterinarian*, and, from the editorial footnote, it is little to be wondered at that in his work on "Sheep," published in 1840, no mention should be made of the worms. And it is evidence of the damage likely to follow reading of an edition so late as 1875 that no progress is made.

The editorial note is as follows:—"This appears to be little more than diarrhœa and hoose (query, bronchitis) with which lambs are so frequently and fatally attacked when exposed to cold or partial starvation soon after weaning. We cannot believe that the draconculi had much or anything to do with it, or existed anywhere except in the imagination of the baron."

In *The Veterinarian* for 1842, Mr. Copeman, of Walpole, Suffolk, describes violent diarrhœa of lambs, in which worms caused irritation of stomach and intestines.

In *The Veterinarian* for 1846, Sylvester, V.S., of St. Albans, directs attention to *Tricocephalus affinis* as a cause of lamb disease, and Dr. Erasmus Wilson writes a long account of the worm.

After this comes a contribution by Dr. Crisp to the Proceedings of the Zoological Society for 1856. Since that date much has been written and said, and many nematodes have been ascribed a residence in the stomach and intestines. At the present moment a certain amount of confusion exists. Simonds came into the field in 1858 with *filaria hæmata*, first described as possessing hooks, by which it held on to the mucous membranes, and afterwards (1867) by sucking discs, and then apparently accepted as strongylus contortus. This veterinarian, however, attached much importance to the effect of the gastric worms. In 1863, Volume XI. of the *Bath and West of England Society's Journal*, Dr. Crisp's elaborate and valuable prize essay on "The Disease in Lambs" was published. This writer drew special attention to the necessity for careful examination of those that die, in order to ascertain whether parasites exist in the stomach as well as the lungs, and to regulate the treatment accordingly; also to the desirability of calling in a qualified veterinary surgeon in this and other serious disease of sheep and cattle. Dr. Crisp says, "violent purging invariably accompanies this complaint," and draws attention to the fact that he found strongyles of two species in the stomach and intestines, adding, "it is that without hooks which I have found so numerous in the stomach, and which I believe often adds so much to the fatalities of 'Lamb Disease.'" *Strongylus contortus* is then described, and the *Strongylus hypostomus* Rudolphi stated as infesting the cœcum. Yet it would appear that up to the date of publication of this essay, the view as to the parasitic nature of the diarrhœa was not generally adopted, for in a series of articles in *The Veterinarian* of 1862, on "Disease of the Stomach and Intestines of the Horse and other Animals," I find no reference to parasites as a cause of gastritis or diarrhœa in lambs.

In *Williams' Veterinary Medicine*, 4th edition, 1884, under "Parasitic Gastritis of the Sheep," this authority refers to strongylus contortus as the sole cause, and accepts Gerlachs' description, which leaves no doubt. At a

discussion on the subject at a meeting of the Scottish Metropolitan Veterinary Medical Society in 1884, Professor Williams objected to the imputation that he had laid any claim whatever to the discovery of strongylus contortus. He was aware it was known to Simonds. In his recent report to the Jamaica Government, Professor Williams again refers at length to strongylus contortus, and states that he found strongylus contortus for the first time in Scotland. At the above meeting of the Scottish Metropolitan Veterinary Medical Society, Professor Walley exhibited specimens of strongylus hypostomus.

Cobbold, in his lectures, referred to strongylus contortus of the stomach as the cause of "True Lamb Disease," and mentions strongylus (Dochmius) hypostomus, and strongylus (Dochmius) cernuus as found in the sheep's intestine.

Steel, in his work on "Diseases of the Sheep," follows his preceptor Cobbold.

Neumann, in his "Parasites of the Domesticated Animals," gives:—

Strongylus contortus as being found in the stomach.
" filicollis as being found in intestines.
" ventricosus " " "
Œsophagostona verulosum.
" " of Columbia (armed).
Sclerostoma hypostomum.
Unemaria cernua.

In an excellent paper by our friend Mr. W. G. B. Dickinson, whose existence I only discovered last night, I find the remark, "If diarrhœa is present it is reasonable to expect the alimentary canal is also infested with parasites, the strongylus contortus."

Baillet, in 1868, to defend his article in *The Zoölogie Vétérinaire* issues a pamphlet, in which he draws attention to the fact that strongylus contortus is sometimes small, *i.e.*, the female from 11 to 30 mm., the male from 8 to 18 mm. Friedberger and Frohner in their "*Pathologie and Thèrapeutique*," mention strongylus contortus and sclerostoma hypostomum as being found causing diarrhœa in sheep, but the former as mainly concerned in bringing about the common red verminous gastritis, *i.e.* "Lamb Disease."

I have found no mention of two small nematodes, which I regard as highly important factors in the causation of the so-called "Lamb Disease." There are specimens of both under the microscope. Each is a strongyle. To the larger I have attributed great importance, having for several years frequently found it in the abomasum of lambs dying of "husk" and gastritis.

The specimens in the bottle and on the slide under the microscopes were taken from a sheep in 1889, and the identical slides soon after mounted, as you now see them. The smaller has been more recently procured.

The larger worm is more common in fatal outbreaks, and is usually more numerous. Often the larger and smaller are found in the same animal, and I think there can be no doubt as to their pathogenic powers. I am not at all sure that a knowledge of minute anatomical characters is essential for practical purposes, but I deem it necessary that at least their size should be realised, as I have known that in cases where strongylus contortus, a comparatively large worm, has been sought for, these worms, from their smaller size, have been overlooked, and the cause of the diarrhœa, debility and death set down as blood-poisoning, etc. For years I have advised my class to look in abomasum for worms from 2-25th of an inch long upwards. If a scraping from the surface of the mucous membrane is placed on a slide, and covered and examined with a low magnifying power the worms are easily found.

The *strongylus contortus* or twisted strongylus, to which so much importance has been attached, is a comparatively large worm, from 10-25th

to 30-25th of an inch long, and so easily seen with the naked eye. It is readily distinguished by many characteristics, the most prominent of which is the twisting of the uterine tubes around the intestines. This parasite has not been found by me in large numbers so commonly as the following. The larger of the two small worms to which I referred as being met with on the gastric and intestinal mucous membrane, I have most often found in large numbers. The average length is from 6-25th to 9-25th of an inch, the females, which are more numerous, being longer than the males. If the worms are separated, they are to the naked eye of a greyish white colour, but often appear slightly brownish when examined under the microscope. There are generally large numbers of relatively small eggs, never embryos, those nearest the anterior extremity being in double rows, and towards the vulva in single row, lying vertically or somewhat obliquely and close together. The ovaries are not twisted, the vulva is in the posterior fifth of the body, and appears something like a mushroom infolded. The anus is in an angular depression, from which the slightly-curved tail runs back to a finely drawn out sharp point. From the vulva forward the body tapers, at first very gradually, to a head, which is circular and unarmed. The œsophagus is strongly muscular, and ends in a bulb from which the intestines run straight to the anus. Longitudinal lines run down the body, and there is transverse marking, not always distinct.

The male is the shorter. Its hood and rays it is difficult to spread. The hood appears made up of two lodes. The rays on each side are long, and the posterior come off as a fine short pedicle which, at its free extremity branches into four delicate rods directed outwards in a forked fashion, two on each side running almost parallel to each other. The spicule is dark and prominent.

The smaller of these worms are from 2-25th to 4-15th of an inch long. These are very easily distinguished from the former by their size, the absence of longitudinal lines, presence of transverse markings, and the relatively large size of the eggs, which in the uterus lie lengthwise, apparently occupying the whole breadth of the body. I have never been able to observe embryos in the eggs. The ovaries are not twisted around the intestines, the nude vulva is situated just at the commencement of the posterior fifth of the body. The anus is near the top of the tail, which suddenly becomes sharp, for the body is thick immediately in front of this. From the vulva forward the body gradually tapers to the head, which is quite plain.

The males gradually taper from behind to before. The posterior extremity is provided by a bursa, whose details are so well brought out in the accompanying photograph that I need not weary you with further description. As the bursa of this worm is spread without any difficulty the special features are readily found. (Specimens of the foregoing worms in bottles and on slides, tricocephalus affinis and sclerostoma hypostomum were exhibited.)

The lesions produced by these worms vary with the number and situation. A catarrhal condition of the abomasum is always existent. In the more severe cases there may be profound inflammation of the mucous membrane, of a bright red colour, and its surface jelly-like. The contents of the stomach are fluid, sand is often present in considerable quantities. The small intestines often show spots of hyperæmia and inflammation, and the large bowels sometimes extensive and intense inflammation affecting large areas. The other lesions depend on anæmia. I do not know of any specific lesion of the mucous membrane produced by the worms. A consideration of some importance is that which concerns the period which elapses between the entrance of the embryo, or ova, and the appearance of symptoms, as this may become a matter for litigation. In Dr. Crisp's essay, before referred to, is the copy of a letter from a Mr. Edwards, in which it is stated that "he divided a flock of lambs

when weaned, and when fourteen weeks' old removed a part from his farm at St. Osyth to that at Ewardstone and put them with an infected flock. In five or six weeks after, the lambs at Ewardstone were seized with the parasitic disease in a most fatal form, whilse those remaining at St. Osyth kept perfectly healthy. The worms were found in the stomach." Some five years ago I was fortunate enough to make a similar observation. So that if a purchaser began to find the disease in lambs which he had bought three or four weeks previously, it is possible that infection took place prior to purchase.

The treatment of these parasitic affections naturally divides itself into preventive and curative.

Preventive measures will be directed to avoiding the entrance of the parasite in any form, and to expelling any which may have gained access before they have induced any injury. Unfortunately, the life history of neither of the parasites is sufficiently well known to permit of our being able to suggest any one definite measure to break the cycle, as appear in our power with fluke disease, whose prevention based on scientific knowledge has been so successful. Practical experience, however, appears to have shown that top dressings of salt, lime, soot, &c., are useful. Exposure of infested surfaces to severe and prolonged frost, cultivation, drainage, removal of stagnant and dirty water, are undoubtedly to be advised. The removal of affected animals to some situation where the ejecta can be treated by vermicides must lessen the risk. Provision of pure drinking water should not be overlooked. As adult sheep and cattle, probably without showing symptoms, harbour the parasites which are so injurious to lambs, it is unsafe to depasture lambs after sheep—a practice generally regarded as fraught with danger. The medicinal treatment of sheep and lambs in places where the parasites are known to exist, though they show no evidence of being affected, is a preventive measure of great importance. This of course particularly applies to the dosing of sheep and lambs, apparently healthy, in affected flocks. As to medicinal agents for this purpose it will not be necessary for me to go into detail. Salt, iron, gentian, turpentine and oil, etc., have enjoyed considerable reputation.

When we come to the curative treatment we necessarily have to consider conditions in relation to the situation of the cause. It is scarcely to be expected that treatment solely directed to affect worms in the lungs will necessarily affect those in the alimentary canal. From the fact that so many lambs which are infested by bronchial strongyles do not die, if diarrhœa is not existent, and that when vermifuges are administered by the mouth the result is frequently so good, in addition to the evident injury on *post-mortem*, I am disposed to attach special importance to the effect of the gastric and intestinal worms. By this I do not mean to imply that *strongylus filaria* alone does not sometimes induce fatal results. With the discovery of the cause of "husk" there is little wonder that special attention was directed to measures which might bring medicinal agents into direct contact with the worms in the bronchial tubes. First probably came fumigation with sulphuric acid gas and chlorine, a system which is now pretty generally discarded, I believe. Then came intertracheal injection, which has been of late so much in vogue, especially for calves. Reference to the literature of the subject tells us this plan is not quite such an innovation as some have imagined. Dr. Crisp, in his essay, mentions having tried injecting salt and water into the trachea, but considered it too difficult an operation for general practice by agriculturists, for whom he was writing. Intertracheal injection has its votaries and opponents. I have had no opportunity of observing results in cases when it has been adopted without the administration of vermifuges by the mouth. A professional friend, whom I met in consulta-

tion on the subject some years ago, writes me to say that for several years he has injected between eight and nine thousand lambs, to which turpentine, salt, etc., have also been given by the mouth, and with great success. A mixture of turpentine, carbolic acid and chloroform is used for injection. There can be little doubt that anything which will so affect the bronchial strongyle as to arrest the development and discharge of embryos, or cause ejection of the worm without hurting the host, must favour the lamb. Expectorant drugs are sometimes used with this object.

In the great majority of outbreaks of the lamb disease coming under my own observation, I think the gastric and intestinal worms are the principal objects for our attack. I believe the practitioner who specially directs his forces to ridding the stomach and intestines of parasites, and at the same time uses all means to support the strength of the host, is likely to be in a large degree successful. Of medicinal agents there is a large selection—methylated chloroform, terebene, turpentine, Jeyes' fluid, soluble phenyl, peppermint, chloride of sodium, carbonate of iron, assafœtida, are all more or less effective. Arsenic, turpentine and oil have been largely used, I hear. Lysol, picrate of potash, and Chaubert's empyreumatic oil are extolled by some. Most observers are agreed that given to the animal fasting, drugs are likely to be more effectual.

In a recent issue of the *Live Stock Journal* there was a glowing description of the estate, stock, and farming of the proprietor of a well-known sheep-dip, which cleverly exposed a receipt for cure of lamb disease, which includes, amongst numerous ingredients, some of the celebrated dip powder. Let us hope that no serious accident will follow.

In many cases in which the disease has far advanced, medicinal treatment will often probably prove futile, but I am convinced that if agriculturalists would consult experienced veterinary surgeons in proper time, it would be greatly to the advantage of the former. Serious losses can be averted, and if sheepowners had been wise enough to recognize the value of the knowledge at our disposal, and seek it in time, less would have been heard of great mortalities during the past season.

In conclusion, I have to thank you for the patient hearing you have given my somewhat protracted remarks, and now I anticipate the pleasure of learning from your extensive experience.

At the conclusion of his address Prof. Penberthy said that in his view there was nothing specific in the form of medicinal treatment for this disease. Each outbreak must be treated according to the circumstances under which the animals were found. The system of the animal must be built up, and the quality of the blood restored, and the parasites attacked. He concluded by saying that since writing this paper he had seen in *The Veterinarian* of July, 1889, an article by Mr. Dickinson on this subject. He agreed with what had been stated by Mr. Dickinson in his paper, and had nothing to add to the treatment advised there.

The Professor then showed some very interesting specimens of the worms in their different stages under the microscope, and on the proposition of Mr. RUDKIN, sconded by Mr. GOOCH, it was decided to adjourn the discussion until the next meeting at Peterboro', with a very hearty vote of thanks to Prof. Penberthy for coming to Grantham and giving them a paper on such a very interesting subject.

Mr. WRAGG proposed, and Mr. RUDKIN seconded a vote of thanks to the retiring President, which Mr. HOWSE cordially acknowledged.

After the meeting, Mr. GOOCH showed the members a case of new parturition instruments, in which he had several improvements on instruments generally in use. A screw sector for cutting through fœtal bones was examined with much interest.

Mr. BROOKS (Leadenham) showed the members a peculiar case of lameness in a four-year-old cart horse. The horse was suffering from rheumatic inflammation of his shoulder joints, and Mr. Brooks was thanked for the trouble he had taken in bringing the horse from Leadenham for the benefit of the Association.

The members then adjourned to dinner, over which Mr. Howse presided. After dinner, the usual loyal toasts having been enthusiastically honoured, "The Health of the President" was proposed by Mr. DICKINSON in his usual able manner, and responded to by Mr. HOWSE.

Mr. JAMES SMITH proposed "The Council R.C.V.S.," and Mr. WRAGG, in reply, said that the Council, like all other bodies, occasionally made mistakes, but he could assure them they tried to do their best for the interests of the profession, and though there was a great deal of work done in Council and committee which did not come to the notice of the members, they felt that if their labours were approved by them, it was sufficient reward. He sincerely trusted that the mistake made at the last election of Council would be remedied at an early date.

"The Essayist," "The Visitors," and "The Treasurer" were duly honoured and responded to, and the Secretary was directed to send a telegram to Captain Russell, expressing the good wishes of the members of the Association and hoping for his speedy restoration to health.

J. A. ROBINSON, *Hon. Sec.*

FOXES BITING OFF LAMBS' TONGUES.—Foxes have been introduced into Australia to supply sport for fox hunting and it was also believed that they would help to exterminate rabbits. A writer in a late Melbourne *Weekly Times* gives an account of Reynard as failing to attack rabbits, and at the same time relates the following of lambs having their tongues bitten off and which were afterwards found in the stomachs of foxes:—"I have, further, seen lambs running about paddocks, bleeding from the mouth. On examination, the tongues were gone. All these lambs eventually die from the injury. A lamb which was killed by a fox was poisoned for bait. The result was that, on the following morning, four foxes were found dead close to the partially-eaten carcase. When opened each of these foxes' stomachs contained *lambs' tongues.* This, too, in a rabbit-infested district. On a station on the Wannon River, near Dunkeld, a dead sheep was poisoned for bait. On the following morning seventeen dead foxes were picked up. This also in a rabbit-infested district."—On page 551 of Volume IX. of this journal there is a report of sheep having their tongues injured on farms near Waku in the Cathcart district. As the jackal is a near relative of the fox the question arises, Was this this done by that animal?

TO THE MEMBERS OF THE PROFESSION.

GENTLEMEN,—I beg to offer myself to you as a candidate for election to the Council of the Royal College of Veterinary Surgeons, nominated by Veterinary-Colonel J. D. Lambert, C.B., Director-General of the Army Veterinary Department.

1. I am in favour of progress, for if the profession does not advance it will go backwards; it cannot remain stationary.

2. I am of opinion that the public now expects a high degree of education from us, but that this education must not only be theoretical but thoroughly practical, and any steps taken to bring this end about will receive my cordial support.

3. I consider that we do not receive the official recognition we are entitled to as educated professional men, in the matter of exemption from service on juries, proper fees being paid for expert evidence, meat inspectorships, and inspectorships under the Board of Agriculture being in the hands of laymen, together with the constitution of that Board as far as we, as the profession, are concerned.

4. I am convinced that these matters will not be set right until we have one of our profession returned as a Member of Parliament to guard our interests, and to this I consider we ought now to devote our attention.

5. Owing to the growth of the empire the profession requires protection in our colonies and dependencies, and of these I have, perhaps, a somewhat larger knowledge than most, having visited many of them.

6. Being permanently stationed in London for some time, if I have the honour of being elected, I hope to be a working member of the Council, without being a London practitioner, and, in short, I will use my best endeavours in forwarding the interests of the veterinary profession.

I am, Gentlemen, yours obediently

JOSHUA ARTHUR NUNN, F.R.C.V.S., C.I.E., D.S.O.
Veterinary-Captain, Army Veterinary Department.

London, *February 24th*, 1897.

EXPERIMENTAL AND CLINICAL STUDY OF THE ASPERGILLUS FUMIGATUS.

(Contributed to the *Bulletin de la Société Centrale de Médécine Vétérinaire.*)

BY A. LUCET.

(*Continued from page* 288.)

III.—*Resistance of Spores. Their Frequency among Food-Stuffs.*

THE resistance of the spores of the *Aspergillus fumigatus* is enormous, and atmospheric agents such as heat, light, moisture, and dryness have little hold on them. I have indeed been able to obtain cultures in Raulin's liquid with conidia: 1st, proceeding from old cultures on potato, exposed to the light and temperature of the room for 29 months; 2nd, preserved in a dry state on pieces of blotting-paper for 24 months; 3rd, raised in potato cultures left on a stove of 37° for 10 months; 4th, fixed on blotting-paper and submitted to the temperature of the laboratory for four months with eight different renewals of dryness and moisture alternately; 5th, preserved in neutral glycerine for fifteen months; 6th, fixed on blotting-paper and placed for two months in a block of ice; 7th, subjected for eight hours to a dry temperature of 65° and for nine hours to a moist temperature of the same number of degrees; 8th, subjected for an hour to a dry temperature of 80° to 85° and for the same time to a moist temperature, varying from 75° to 80°; 9th, preserved in alkaline veal bouillon enclosed in sealed tubes and kept for six months at a temperature of 12°; 10th, raised at the end of a year in eggs in which they had been developing during incubation; 11th, after remaining for a month in the midst of animal substances in a state of decomposition.

Under all the conditions enumerated above, the spores sown develop as fast and furnish cultures as abundant as if they were of recent origin or preserved under normal conditions. Further, cultures thus obtained are possessed of equal virulence. The spores themselves, treated in the manner described and inoculated directly into the circulation of rabbits, without having recourse to new cultures, show themselves pathogenic in as marked a degree as young spores that have undergone no process likely to modify their vitality or their

virulence. From these researches, then, this fact results: the enormous resistance which the spores of the *Aspergillus fumigatus* possess when brought face to face with natural causes of destruction. Further, these results show also that these spores, as long as they preserve their vegetative power, keep intact their pathogenic force, an assertion already indicated by researches before cited.

These qualities inherent in the *Aspergillus fumigatus* are still further demonstrated by the following experiments showing the action of certain chemical agents on the spores of this fungus. In March, 1895, I raised, in a two-months-old culture on potato, an abundant quantity of spores, which were mixed closely together by shaking in four cubic centimetres of distilled water, sterilised. This emulsion was sufficient to cover threads of white silk with spores. These threads, cut in fragments of one centimetre in length, were, after desiccation on blotting-paper in the open air, plunged for twelve hours in five per cent. solutions of sulphuric acid, chlorhydric acid, azotic acid, phenic acid, boric acid, sulphate of copper, sulphate of zinc, sulphate of iron, chloride of zinc, nitrate of silver, bi- and protochloride of mercury and lastly Jeyes' cresyl. Desiccated anew after their sojourn in these substances, these threads impregnated with spores were afterwards plunged in balloons containing a certain quantity of beef-bouillon, acid and sugared, and placed on a stove at 37°. Now only the spores which had undergone the action of the sulphuric, azotic, and plenic acids, of the sublimate, sulphate, and chloride of zinc and of the nitrate of silver lost their germinative power, while the others, after a brief interval, all gave abundant cultures with virulence as active as that of cultures obtained with young spores kept for comparison.

There are more facts in addition to these to show how resistant the spores are. On the 15th January, 1895, with the help of a bistoury, I laid open over a certain length the skin of the back of a vigorous rabbit, and into the subcutaneous pouch thus formed I introduced a great number of spores gathered in a young culture on carrot. The wound was afterwards closed up with the help of a seton and completely covered over with iodoform collodion. At the point of inoculation a purulent gathering slowly developed, as big as a small nut, well-marked, painful, but without serious effect upon the general condition of the animal. On the 20th March following this abscess, which had assumed a chronic form and showed no tendency to finish of its own accord, was opened with a cut of the bistoury. It gave passage to a creamy pus, odourless, yellowish, and striped with blackish streaks which the microscope showed to be composed of accumulations of spores or of sporiferous heads previously inoculated, still existent and having undergone no physical deterioration. In this state of affairs it was interesting to investigate whether those reproductive elements which had preserved their ordinary aspect had also retained their vegetable properties. With this end in view, a small quantity of pus was sown in Raulin's liquid. This, placed on a stone at 38°, in three days furnished an abundant culture, very strong and virulent.

On the 3rd August, 1895, I pulverised an old potato-culture, very rich in spores, and gave it, mixed with bran, to a guinea-pig, placed in a position for observation, to eat. On the 5th August, fæces of this animal, diluted in water and examined by the microscope, showed a certain quantity of spores, which, though they had traversed the whole of the digestive tract, seemed to have preserved their ordinary physical aspect. I then submerged some of these fæces in Raulin's liquid enclosed in a balloon, and then placed it on the stove at 40°. Four days afterwards all the available surface of the nutritive liquid was covered with a fine culture of *Aspergillus fumigatus*. The same experiment made with a horse in September, 1895, gave an identical result.

The *Aspergillus fumigatus* is widely diffused in nature, and its spores are very common amongst all the substances used for the food of animals.

Rénon has already, by means of several investigations, shown the presence of these spores in the air, on the bark, leaves, and seeds of trees, on pebbles, and in the superficial strata of the soil, on grains of corn, in flour, and amongst the seeds used to feed birds. My own researches confirm those of Rénon. As regards grain, I have examined five samples of wheat, twenty-two of oats, twelve of rye, eight of barley, three of maize, all from my own district. All were examined according to the method used by Rénon. Washing of the samples was effected with distilled water, and sowing of Raulin's liquid with the water used for washing the samples. Now, of this total of sixty samples of grain ordinarily cultivated, forty-eight yielded positive cultures, namely, maize 2, barley 6, rye 10, oats 19, wheat 11. Amongst fodder and straw, the spores of the *Aspergillus fumigatus* are no less common. In fourteen samples of different kinds of fodder, lucerne, clover, sainfoin, and ten samples of wheat, oat, and rye-straw, that is, in a total of twenty-four samples, the spores of the fungus were met with eighteen times. This frequency, amongst fodder, straw, and grain, of the spores of the *Aspergillus fumigatus* being only explicable by the development of the fungus itself on the stems, leaves, or fruit of plants, I thought it would be interesting to investigate under what conditions this development takes place, that is to say, whether it occurs on plants while standing, or only after they have been reaped, when they are piled up in ricks or kept in granaries.

The *Aspergillus fumigatus*, demanding as it does, in order to live and fructify, certain conditions of heat, aëration, and moisture, would seem to have some difficulty in lighting upon a favourable situation in plants reaped and preserved for the nourishment of animals, and sometimes of man (*i.e.*, grain). These plants, indeed, are ordinarily harvested in the dry state only, then preserved in this state in ricks or granaries, in which they are piled up, and consequently deprived, if not of the heat, at least of the moisture and aëration necessary for the *Aspergillus fumigatus* to succeed in furnishing spores. Standing crops, on the contrary, whether fodder or grain, all afford conditions allowing this fungus to thrive at their expense—before they have reached full maturity, anyhow. Among them, when they are still in a green state, are found not only the chemical elements necessary for its development, but also suitable moisture, aëration, and warmth, the first furnished by the plants on which it grows, the others provided by the atmosphere. This hypothesis is confirmed by facts. In the month of July, for example, it is very easy to find, in a field covered with a crop of any kind whatever, samples of the crop whose stalks or blades present some points attacked by a mould of some kind, and it is no less easy, by microscopic examination, and cultures, and inoculation in the rabbit, to show that in at least half the cases, these deteriorations are occasioned by the *Aspergillus fumigatus*, whose spores spread everywhere under the action of operations necessitated by mowing, hay-making, or threshing.

These being the conditions, it is manifest that certain summers are more favourable than others for the production of the *Aspergillus fumigatus*. Scarce in cold summers and summers of irregular temperature, it is, on the contrary, frequent in warm years. These facts are of importance as regards the prophylaxy of mycoses.

Obituary.

Ware, Edwin, Bridgewater, Somerset .. .. Dec., 1869.

PROFESSOR KOCH AND THE CURE OF TUBERCULOSIS.

A CORRESPONDENT of the *Times* writes:—If an apology were needed for discussing the recent announcement of a new "cure" for tuberculosis discovered by Koch it could be found in the only too-widely spread interest which people of all classes have in the subject. The introduction by Koch of tuberculin in 1890 was followed by hopes of the most extravagant kind, and the new announcement is greeted with a reticence and scepticism not only natural but extremely wholesome. During these six years, however, work has been going on in all branches of study relating to bacteria-caused disease, and the knowledge that has been gained has furthered Koch in his particular research. Koch had already observed before 1890 that there is a short stage in the miliary tuberculosis of man and the experimentally-produced disease in animals, where for a time a partial immunity is manifest and the bacilli disappear, while inoculations made during this period do not "take." Finding it apparently useless to attempt to extract from the bacilli those substances the absorption of which induced, according to his views, the temporary immunity he had observed, he tried the injection of the bacilli themselves (dead ones, of course); but, although he obtained a partial success, the method had to be abandoned, as it turned out that only very small quantities of bacilli could be absorbed, larger amounts giving rise to abscesses under the skin. It then occurred to Koch that, perhaps, if the bacilli could be broken up first it would be possible to extract the substances he sought. The tubercle bacillus is, as is well known, provided with an extremely impenetrable coat, and he thought that possibly if this were destroyed he might succeed. They are, however, so infinitesimally small that this, too, failed at first, but he finally gained his end by grinding the carefully-dried cultures in an agate mortar, and obtained a mass in which, when examined by the microscope, bacilli were no longer visible. It is with a watery extract of this mass that he has now attained results which seem to him to justify publication. The emulsion of crushed bacilli is separated by a centrifugal machine into a sediment and an over-lying layer of clear fluid. This fluid Koch terms tuberculin O or T O, and it differs only slightly in its action from the tuberculin of 1890. The sediment is dried, again triturated and extracted with water. The liquid thus obtained he terms tuberculin R (T R.) Its properties are widely different from that of the T O, and, says Koch, "It confers upon animals treated with it a high degree of immunity to tuberculosis." It does not, as was the case with tuberculin, give rise to violent febrile reactions, of which its curative properties are quite independent. After describing in some detail the methods of preparation and mode of treatment, he continues thus:—"In the immunization of healthy animals and the curative treatment of those already infected everything depends upon the use of the largest possible doses that can be readily absorbed. Observing carefully the necessary conditions, I have been successful in perfectly immunizing a large number of guinea-pigs, so that they withstood repeated inoculation with virulent tubercle-cultures without becoming infected." Now, taking this statement at its lowest value, there can be no doubt that it indicates a discovery of the greatest importance. The T R not only immunizes healthy animals against subsequent infection, but possesses pronounced curative power. After treating with it guinea-pigs already suffering from tuberculosis, Koch says that he found, without exception, more or less extended retrogressive changes in all those organs which at the commencement of treatment were already tuberculous. "On the whole," he continues, "the experiments have led me to the belief that perfect immunity is brought about in two or three weeks after using the larger doses of the substance. Therefore, the cure of tuberculous guinea-pigs, in which the

disease runs a rapid course, is only possible when treatment is begun less than a fortnight after infection." He then goes on to speak of his results in the treatment of human tuberculosis, and utters an emphatic warning against unrealizable expectations. He says categorically that for a patient who, in the natural course of things, has only a few more months to live, no benefit is to be gained by the treatment. "Of suitable cases," he says, "I have treated a large number with the new preparation, particularly lupus patients, and have seen, without exception, great improvement set in . . . I speak intentionally only of 'improvement,' although, according to ordinary ideas, not a few cases might be designated as cured; but I consider it premature to use the word 'cure' until a sufficient time has gone by without a relapse." Finally he lays great weight upon the fact that the treatment is unattended by any unpleasant symptoms for the patient, such as were caused by the original tuberculin.

1897.—QUEENSLAND.
REPORTS RELATING TO THE MICROBES OF CHICKEN-CHOLERA.

BY C. J. POUND, F.R.M.S., GOVERNMENT BACTERIOLOGIST.

Presented to both Houses of Parliament by Command.

Bacteriological Laboratory, Stock Institute,
Brisbane, 13*th November*, 1896.

SIR,—I have the honour to submit herewith the following reports dealing with the subject of the destruction of rabbits by feeding with microbes of chicken-cholera, viz.:—

(1) The discovery of chicken-cholera in Australia;
(2) The advisability of employing the microbes of chicken-cholera in the destruction of rabbits;
(3) Containing a summary of the conclusions arrived at after the experiments conducted at Dilltoppa, near Thargomindah;

and further, I anticipate to have ready, at an early date, a final report on the experiments conducted mainly at the Stock Institute, Brisbane, and at Dilltoppa, Koopa, and Kooliatta, near Thargomindah.

I have, &c.,
C. J. POUND, F.R.M.S.,
Government Bacteriologist.

The Honourable the Minister for Lands, Brisbane.

REPORT ON THE DISCOVERY OF CHICKEN-CHOLERA IN AUSTRALIA.

Bacteriological Laboratory, Stock Institute,
Brisbane, 25*th July*, 1895.

SIR,—I have the honour to report on an extremely interesting and important discovery—namely, the existence in Brisbane of a disease among poultry technically spoken of as *Septicæmia hæmorrhagica*, but more commonly known in European countries as chicken-cholera.

The micro-organism, which is undoubtedly the sole existing cause of this disease, was the one which M. Pasteur proposed to introduce into New South Wales for the purpose of exterminating the rabbits.

During the sittings of the "Royal Commission of Inquiry into Schemes for Extermination of Rabbits in Australia," a very important question arose—namely, does chicken-cholera in any form exist in the Australian colonies? Whereupon Dr. Katz, the chief expert to the Commission, was requested to

prosecute inquiries, and report on the results of his investigations as to the cause of death of a number of fowls submitted to him for examination from various parts of New South Wales, Victoria, Tasmania, and New Zealand, where some epidemic, which was supposed to be analogous to chicken-cholera, had carried off hundreds of fowls. Each specimen was accompanied by a descriptive and apparently faithful report on the nature of the disease as it appeared on the various poultry-farms.

After having perused these reports and examined some of the fowls from the nine different districts, Dr. Katz reported to the Commission on the results of his investigations, and concluded his report as follows :—

"Thus, in none of the above nine cases could the disorder of which the above fowls died be identified as fowl-cholera; but, in order to form a definite opinion as to whether this infectious disease exists in Australasia or not, further examinations are required, and must be continued for some time."

The question, "Does chicken-cholera exist in these colonies?" was, in my opinion, the most important one the Commission had to deal with in reference to M. Pasteur's proposals, and nothing should have been neglected in endeavouring to thoroughly investigate this important matter.

So far as I am aware up to the present, there are no records to be found of anyone having discovered the existence of chicken-cholera in these colonies. I therefore claim priority in scientifically proving the existence of this historical disease in Australasia; further, I have every reason to believe, from my own practical observations and from information received from reliable sources, that it has existed, not only in Brisbane, but in other parts of this and the neighbouring colonies for a number of years.

How the Disease in Brisbane came under my notice.

On the 20th of last month I received information that a number of ducks and fowls were dying from apparently some form of poisoning. I requested that one of the dead birds should be forwarded to the laboratory for examination. The next day a Muscovy duck was received which had recently died.

Post Mortem Appearance.—Both the liver and spleen were somewhat enlarged and congested. The pericardium or membrane covering the heart contained a quantity of œdematous fluid. The outer surface of the heart was covered with numerous hæmorrhagic patches due to extravasation of blood. The lungs were only slighly congested. A very noticeable feature was the intense inflamation all along the intestines, the blood-vessels having the appearance of being injected, while the contents of the intestines presented a greenish-yellow watery appearance.

Microscopical Examination.—Cover-glass specimens of blood taken from the liver were found to contain numerous minute oval-shaped bacteia lying between the blood cells, which, when stained with Loffler's Alkaline Methylene blue appeared morphologically identical with Pasteur's microbes of chicken-cholera. Specimens prepared from the contents of intestines revealed the presence of extraordinary numbers of the same organism. Inoculations from the blood were made on nutrient sterilised agar-agar, gelatine, and potato and in beef broth, all of which yielded typical cultivations of the chicken-cholera microbe.

Experiments on Rabbits, etc.

Experiment I.—A mere trace of the blood from the spleen of the duck was injected into the subcutaneous tissue of a rabbit and a mouse; both died in about fourteen hours, with all the symptoms peculiar to this disease. On microscopical examination of the blood from various internal organs of both

these animals the same same bacteria were discovered; cultures also yielded positive results.

Experiment II.—Blood from rabbit I. was injected into a rabbit, a guinea-pig, and a pigeon. In this experiment all the animals died within twenty-four hours of acute septicæmia. Microscopical examination and cultivations on various nutrient media gave positive results.

Experiment III.—A rabbit fed with a little of the blood from rabbit I. died in twenty hours, with the same characteristic symptoms. Microscopical examination and cultivations also gave positive results.

Experiment IV.—Four rabbits were fed with a broth culture of the bacteria from the blood of rabbit III.; all died within twenty-four hours, with symptoms characteristic of infection from chicken-cholera. Microscopical examination and cultivations again gave positive results.

In addition to the above experiments a number of other rabbits and fowls were experimented on, both by feeding and inoculation, the results of which were highly satisfactory in demonstrating the nature of the disease.

All the animals used in the foregoing experiments were well nourished and healthy, having previously been kept under observation for several months.

Symptoms in Fowls and Rabbits.

Subcutaneous injection of a minute quantity of a virulent culture usually kills chickens within forty-eight hours. Some time before death the fowl falls into a somnolent condition, and, with drooping wings and ruffled feathers, remains standing in one place until it dies. Infection may also occur from the ingestion of food moistened with a culture of the bacillus, or soiled with the discharges from the bowels of other infected fowls.

In rabbits death commonly occurs in from sixteen to twenty hours, and is often preceded by convulsions. The temperature is elevated at first, but shortly before death it is reduced below the normal.

A remarkable fact in connection with this disease is that in whatever way the micro-organisms are introduced, either by ingesting or by direct inoculation into the subcutaneous tissues, they always find their way into the general circulation; thus death is really due to true septicæmia or blood-poisoning.

Morphology.—The microbe of chicken-cholera is one of the smallest germs known, rarely exceeding the one twenty thousandth (1 20,000th) of an inch in length and the one forty-two thousandth (1 42,000th) of an inch in diameter; in fact, it not only requires the use of specially-prepared stains and the highest class lenses for its detection, but a certain amount of skill and perseverance in order to understand its morphological characters.

In specimens of blood from an animal dead of *Septicæmia hæmorrhagica* stained with an alkaline solution of methylene blue, the organisms appear, when suitably illuminated under an oil immersion lens, as extremely minute, slightly oval-shaped cells, the poles as extremities stainng very deeply, while the central portion remains almost clear.

They are mostly uniform in size, but more rarely some are seen to be very much longer, taking the stain in a more irregular manner.

Biological Characters.—The chicken-cholera organism is non-motile; does not form spores; grows in various culture media at the room temperature, but more rapidly at 100° Fahr., or just above blood heat. It is an ærobic bacterium—that is to say, oxygen is necessary for its development.

Upon gelatine plates after three days' incubation at 70° Fahr.. the colonies appear as extremely minute, granular spherical white dots, with a more or less irregular outline, and by transmitted light have a yellowish colour; later the central portion of the colonies is of a yellowish-brown colour, and is surrounded by a transparent peripheral zone.

In streak cultures upon the surface of sterilised tubes of nutrient agar-agar, gelatine, or blood serum, the growth is limited to the immediate vicinity of the line of inoculation, and consists of finely granular, semi-transparent colonies, which form a thin greyish-white layer with irregular somewhat thickened margins.

Upon potato no development occurs as a rule at the room temperature, but in the incubator a thin, yellowish, waxy layer is developed in the course of a few days.

Development in bouillon (beef broth) is rapid, and causes a uniform turbidity of the fluid.

Conclusion.

When we consider the extraordinary numbers of different breeds of poultry which have been annually imported into Australia from various European countries where chicken-cholera has been known to exist from time immemorial, and also the numbers of live fowls (for table use) carried on passenger boats to Australia from different English, American, and Continental ports, it appears more than ridiculous to suppose that a bacterial disease like chicken-cholera should have been excluded from our shores up to the present time.

Note on the Existence of Chicken-Cholera in New South Wales.

Since the above Report was written I received from R. D. Richards, Esq., Violet Street, Bathurst, on the 14th August, 1895, specimens of livers of fowls dead of chicken-cholera, as proved by microscopical examination, cultivation, and inoculation experiments. In a letter which accompanied the specimens Mr. Richards states that the disease, chicken-cholera, has appeared amongst his poultry periodically for the last ten years, each epidemic killing off numbers of young and old birds.

I have, etc.,
C. J. POUND, F.R.M.S.,
Director Stock Institute.

The Chief Inspector of Stock, Brisbane.

REPORT CONTAINING SUMMARY OF CONCLUSIONS ARRIVED AT AFTER EXPERIMENTS AT DILLTOPPA.

Bacteriological Laboratory, Queensland Stock Institute,
Brisbane, 13*th November*, 1896.

SIR,—In accordance with your instructions, I have the honour to submit herewith a summary of conclusions arrived at in my report (which is not yet complete) on experiments conducted with the bacteria of chicken-cholera.

These investigations were mainly instituted for the purpose of testing the efficacy and practicability of employing this disease for the destruction of rabbits living under natural conditions in open country, as recommended to the New South Wales Government in the first instance by the late M. Pasteur.

1. Chicken-cholera has been proved to exist naturally among poultry in Queensland and New South Wales.

2. The bacteria of chicken-cholera, when added to the food of a rabbit, produces an extremely virulent form of septicæmia or blood-poisoning, which invariably results in the death of the animal in from eight to twenty-four hours.

3. Carefully conducted experiments show that although chicken-cholera is a natural disease of fowls, they are not nearly so susceptible to its influence as rabbits.

4. The disease, if introduced among rabbits living in close community, may, under certain conditions, be of a highly contagious nature.

5. In fowls the disease is characterised by symptoms of acute diarrhœa, while in rabbits this symptom occurs only occasionally.

6. Active bacteria of chicken-cholera are found in the excrement of rabbits suffering from diarrhœa after being fed or inoculated with the same microbes. In exceptional cases active bacteria are also found in the exudation from the mouth and nostrils of rabbits dead of this disease.

7. It has been definitely proved by accidental and specially-planned experiments that rabbits suffering from acute diarrhœa, as a result of infection with chicken-cholera germs, are capable of communicating and disseminating the disease among healthy rabbits living in close community.

8. The method proposed for distributing the infective material, which may be obtained either from virulent broth cultures or from the blood of rabbits dead of the disease, among rabbits in open country is practically the same as that at present in use for distributing phosphorus and other poisons.

9. The process of preparing and distributing the infected pollard is not nearly so dangerous as when phosphorus and strychnine are employed, inasmuch that human beings, horses, cattle, sheep, pigs, dogs, and cats are in no way susceptible to chicken-cholera.

10. Pollard infected with chicken-cholera microbes is not nearly so dangerous to wild birds as pollard poisoned with phosphorus.

11. Beyond an occasional case of direct infection through eating infected pollard, the chances of wild birds contracting the disease need not be considered.

12. The conditions under which wild birds live absolutely prevent the disease from becoming contagious or in any way assuming an epidemic form among them.

13. Broth cultures, inoculated direct from an animal dead of virulent chicken-cholera, hermetically sealed and kept in a cool place, will retain their vitality and virulent properties for over twelve months.

14. The bacteria of chicken-cholera, mixed with pollard in the form of pellets (½-inch square), lose their virulence after being exposed to sunlight for twenty-four hours.

15. The bacteria of chicken-cholera, mixed with pollard in the form of pellets (½-inch square) lose their virulence after three days' desiccation in the dark.

16. The bacteria of chicken-cholera, if cultivated artificially for twelve months through twenty successive generations, will become so attenuated as to scarcely produce even a mild form of disease in a young susceptible animal.

17. The cultivation of the virulent microbes, either in bottles of sterilised broth or in the bodies of healthy rabbits, the mixing of the same with pollard, water, or other agent, and its distribution, may be carried out by any person even if unacquainted with the rudimentary principles of bacteriology.

18. The material and appliances required for the cultivation of the bacteria of chicken-cholera may be obtained (with few exceptions) on almost all cattle and sheep stations.

19. The practical utility of employing chicken-cholera as a means of destroying rabbits on a large scale in thickly infested country has been fully demonstrated by the experiments conducted under natural conditions at Dilltoppa.

20. It is only fair to state that this method, like phosphorus poisoning, can only be carried out in a satisfactory manner during dry seasons, when the natural food of rabbits is scarce.

Conclusion.

The evidence which has been brought forward by the somewhat exhaustive series of carefully conducted experiments, which prove beyond all doubt that the disease known as chicken-cholera is contagious when introduced among

rabbits living under natural conditions, is, in my opinion, of such a highly satisfactory character, and so far conclusive, as to warrant the Government of this or any other colony granting permission to pastoralists and others who suffer directly from the depredations of rabbits, to utilise this scheme of rabbit destruction.

I have, etc.,
C. J. POUND, F.R.M.S.,
Government Bacteriologist.

The Honourable the Minister for Lands, Brisbane.

NEW DOG TOOTH INSTRUMENTS.

AS SUGGESTED BY HENRY GRAY, M.R.C.V.S.

ARNOLD & SONS LONDON
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ARNOLD & SONS LONDON
ARNOLD & SONS LONDON

KNOWING from actual experience the want of suitable and reliable tooth instruments for the dog, without having recourse to those made for human

purposes, which frequently fail to be of any use whatever, MESSRS. ARNOLD & SONS, LONDON, have made at my suggestion some instruments which I have found answer every purpose for which they are required.

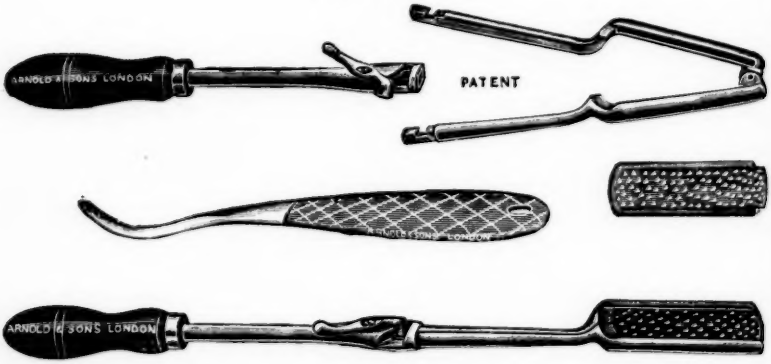
They consist of—

Three pairs of Forceps,
One Gum Lancet,
Three Scalers.

The largest pair of forceps are suitable for the extraction of the molars of both upper and lower jaws. The medium pair are well adapted for the removal of the pre-molars and incisors, whether temporary or permanent, and also for the removal of small bones and needles from the mouth. The small pair are for the removal of the temporary canines, which every practitioner with any experience whatever must have felt the want of; by the use of this pair it will be found that, as the blades are almost parallel, the pressure being equal over the whole surface of the tooth within the forceps, there is very little chance of the tooth being cut in two, as is the case when ordinary forceps are used, the pressure being all at one point. The gum lancet will be found very useful in separating the gum from the temporary canine, which is, in my opinion, the most difficult tooth to extract properly. The scalers will be found of great convenience in removing the tartar from the teeth.

RELIANCE TOOTH RASP.

(PATENTED.)



THE above illustration shows a new form of Tooth Rasp which possesses many distinct advantages over those at present in use.

First :—It is so constructed that any number of plates can be instantly fitted.

Second :—Hitherto rasps with moveable plates have been made with screws either fitting into the plate or pressing on it, and as these plates are necessarily very hard they are continually breaking. Now this invention entirely obviates this difficulty, as one has simply to open the clamp, place in the plate close the instrument, and it is then ready for use.

Third:—Four kinds of plates can be used viz:—fine cut, coarse cut, cut both ways, and file cut.

Fourth:—Extra plates are supplied at a charge of 1/9 each.

The rasp is extremely portable, folding into a very small space for carrying.

The patentees and manufacturers are MESSRS. ARNOLD & SONS, of WEST SMITHFIELD, LONDON.

NEW INVENTION.

WE have received one of RITCHIE'S IMPROVED PATENT FORAGE BAGS, and have no hesitation in strongly recommending it to horse-owners for the following reasons. It is handy; it is easily put on and taken off; there is greater ease in feeding from it than there is in the old-fashioned ones; there is absolutely no waste; it is well ventilated, and does not easily get dirty.

Legal News.

CHARGE OF CRUELTY TO SHEEP IN LEEDS.

At Leeds Police-court, on April 10th, William Woodcock, a cattle dealer, of Bridlington, was charged with cruelty to eighty sheep in Leeds Cattle Market, on March 16th and 17th. Mr. Waugh, instructed by Mr. A. Willey, prosecuted on behalf of the R.S.P.C.A., and Mr. Child conducted the defence. The evidence of the witnesses for the prosecution was to the effect that on March 16th the sheep, which had been newly shorn, were brought to Leeds by train. In the trucks they were closely packed. On leaving the train they were driven to the cattle market, and left in pens in what is known as the "calf shed." In these pens the sheep were exposed to the inclemency of the weather, three sides of the shed being open, whilst the night was wet and cold. The attention of the defendant was called to this, and he was asked to remove the sheep to the "shorn sheep shed." He refused to do so, however.—Mr. Somers, veterinary surgon, Leeds; Professor Pritchard, ex-president and a member of the council of the Royal College of Veterinary Surgeons; and Mr. H. J. Parkin, veterinary surgeon, of Doncaster, deposed that the shed was not a fit place in which to put shorn sheep in such weather.—The defence was that the shed was commonly used for shorn sheep, and that it was sufficiently enclosed to protect the animals from cold. Thirteen witnesses were called in support of this latter contention. Mr. Bowman, Veterinary Surgeon to the Leeds Corporation; Professor Williams, Principal of the Veterinary College at Edinburgh; and several other veterinary surgeons were of opinion that the shed used by the defendant was a proper place in which to put sheep in any weather.—The Stipendiary said that if the animals did suffer, the extent of the suffering must be a matter, more or less, of speculation. Even if he made the assumption that there was such exposure as to cause suffering, he did not think that there was evidence of suffering sufficient to establish a criminal charge. It was one thing to commit an error of judgment, and quite another thing to inflict cruelty sufficient to be made the subject of a criminal prosecution. He did not wish it to go forth, however,

that he had expressed an opinion that this was a proper shed in which to place animals under all circumstances.—The case was dismissed.

THE "DOCKING" OF HORSES: IMPORTANT HALIFAX PROSECUTION.

A case which is likely to excite extreme interest among horse-dealers and veterinary surgeons throughout the kingdom was mentioned at the Halifax Borough Court on April 11th. Mr. J. Appleyard, veterinary surgeon, of this town, and a farmer named Radcliffe Ingham, of Jumples Cragg, have been summoned by the Royal Society for the Prevention of Cruelty to Animals for cruelty to a horse by "docking" the same. The services of Mr. W. J. Waugh, barrister-at-law, of Bradford, have been secured to prosecute, and the defendants are represented by Mr. F. G. Smith (from Mr. W. H. Boocock's office). Yesterday afternoon Mr. Smith applied to the Magistrates for an adjournment, as he had only recently been instructed.—Mr. Waugh said this was an important test case, viz., whether it was cruelty to "dock" horses' tails. No notice had been given of this application. At considerable expense to the Society, and at great inconvenience to himself, Professor Pritchard, of the Royal College of Veterinary Surgeons, had come from London, and he had other veterinary surgeons from Doncaster and Leeds. The expenses for the day would reach £20.—Eventually a cheque for £20 was placed in the Magistrates' Clerk's hands by the defendant's father, and the case was adjourned until the 5th of May, the cheque to become the property of the complainants in any case.

Extracts from Foreign Journals.

VETERINARY THERAPEUTICS IN CONSTANTINOPLE.

At the present moment, when the attention of the whole world is directed to Eastern Europe, we draw attention to the following extract from a report of a visit to Constantinople, prepared by Chief Veterinary-Surgeon Sperl, which has been communicated to the *Thierärztliches Centralblatt*, from whose pages we are privileged to translate it:—

Veterinary practice in Constantinople is in a bad way, for the Mahometans, in their treatment of animals, as in everything else, are fatalists, and trust everything to Allah and his Prophet, and do nothing for themselves. Stables in that city are formed of wood and wickerwork, and make an airy and healthy abode for horses. This fact, combined with the other that horses are driven slowly through the streets, may be the cause that disease is comparatively rare there. As to influenza amongst horses, neither the tramway veterinary inspector nor any one of a great many other surgeons whom I questioned could give me any information. The few traces of veterinary therapeutics that I met with were confined principally to mystic practices and the hot iron. Talismans play an important part in the treatment of sick animals, and these are used both as prophylactics and as a guard against witchcraft. A talisman consists generally of long strips of paper covered with Arabic writing—mostly extracts from the Koran. These strips are folded in a triangular form, sewn up in leathern bags, and hung round the necks of animals with many mysterious ceremonies. Sometimes herbs or roots are placed in the bags along with the writing. For different diseases different talismans are used, and the supposed powers of these vary considerably in their duration.

The hot iron is applied for the cure of both external and internal disease, and as every

third or fourth horse one sees in Constantinople bears traces of the *ferrum candens*, it is easy to tell to what an extraordinary extent the use of it is carried. Line firing leaves mostly broad-striped scars, considerably apart from one another and at unequal distances, and generally lying in different directions. On a fired tendon, for instance, one finds, outside and in, at most three to four thick stripes, one of which runs across, another diagonally upwards, and a third diagonally downwards. One often sees a whole surface hairless, like a big scar. I saw two cavalry and one artillery regiments leaving barracks one day, the horses of which, to a great extent, bore traces of the hot iron. They would have delighted the heart of those men who so frantically advocate firing as a cure for all evils. That the Turks look upon firing as an unfailing panacea is shown by the fact that they use it in cases of colic and inflammation of the lungs.

As internal applications they use various vegetable preparations, resin, and strong black coffee; in cases of colic they use dried ox-gall. When a very valuable horse is ill, the Turk gives him a dose of strong coffee and a quantity of bear's gall, dried and pulverised —a very expensive medicament.

Outwardly salves are applied, especially in diseases of the skin, for which flowers of sulphur, mixed with oil, are employed. The use of vapour baths is a favourite treatment for horses in Constantinople.

The castration of horses by removal of the testicles is not customary. Reproductive power is destroyed in young colts by beating the testicles, or by twisting or burning the spermatic cords.

Shoeing is for the most part very bad. Only the tramway horses and the carriage horses of the better classes are shod in the European fashion. As a general rule, Oriental methods are still followed. Many Turks do their own shoeing although they have never learnt the trade. A shoe as near as possible to the size of the hoof is purchased, the hoof is cut down to suit it—or as nearly as possible!—and then the flat-shaped shoe is nailed on without any particular care being taken. Yet in spite of this primitive mode of shoeing, diseases of the hoof are said to be by no means common, but I think the Turks have to thank for this the firmness and resisting power inherent in the little hoofs of their horses.

A DIFFICULT BIRTH (DYSTOKIA).

Surgeon Horn writes to the *Wochenschr. für Thierheilk* as follows:—

A cow was unable to give birth to her calf. The position of the fœtus was ascertained, the passages were wide enough, the hind-feet and tail of the fœtus could be easily reached, and there was no apparent hindrance. Still, the calf would not move. Its position was changed, but without result. At length it was discovered that the calf had an enormous swelling embracing its whole neck. The skin at this point was then cut in several places, and the swelling reduced, and the fœtus was by this means removed. The swelling was caused by an enormous over-growth of the thymus-gland.

Notes and News.

TETANUS ANTITOXIN (by J. Fraser, F.R.C.V.S., St. Albans).—An observation made by Mr. J. H. Carter in his excellent presidential address at Manchester, induces me to record my experience in the use of tetanus antitoxin. I have had three cases of tetanus in the horse during February of this year, and all recovered. As they did not differ from each other in any essential particular, it will suffice if I give the details of one only. Subject: A black gelding, six years old, valuable hunter, well known to me for the last two years. On January 26th he, while out at exercise, got away from the groom, jumped a high bank with a big drop on the opposite side, fell, and cut his near shoulder slightly. He sustained no other injury, and with the usual treatment made a rapid and complete recovery. On February 26th, while

attending another hunter in the same stable, the owner asked me to look at the black gelding's eyes. The membrana nictitans was fully half-way across the eyeball, and he moved stiff in front. Pulse and temperature normal. It was a clear case of tetanus. The muscles of the head and neck only were involved, near side the worst; those of the body and hind-quarters were comparatively free. I had him removed at once to my own stable, placed in a roomy box, bedded with moss litter. I wired for antitoxin and began treatment immediately. I gave him one dose daily for six days. In other respects I simply attended to his comfort, giving him plenty of gruel, keeping him as quiet as possible, etc. I did not put him in slings. The spasm extended to all parts of the body, and also increased in severity daily for three days; it then remained stationary for two or three days, and after that began gradually to subside, and continued until recovery was complete. I do not know whether I am less fortunate than 'other veterinary surgeons in the treatment of tetanus or not, but I have not had three recoveries in twenty-five years! Therefore, it is not surprising that on securing three recoveries in one month I should give the new treatment credit for this, to me, unusual success. To say the least of it, I consider it worthy of trial. I do not think anyone need be deterred by the price of the antitoxin. I do not wish to advertise any particular source of supply, but it cost me less than 20s. per patient. Even if it cost £2 12s. 6d. it is money well invested, provided we can save our patient. The only difficulty I had was the excitement caused by the introduction of the syringe, and consequent terrible convulsions. I do not see how this can be obviated, unless we could produce local anæsthesia.—*Veterinary Record.*

On the Hæmocytozoa of Birds (Eugene L. Opie).—The presence of parasites closely resembling the malarial organisms of man, within the red corpuscles of birds, is well-known. These organisms have been found in varying abundance in the blood of birds of many parts of Europe, but up to the present time they have not apparently been studied in this country. At the suggestion of Dr. Thayer these intracorpuscular parasites have been studied in the Clinical Laboratory of the Hospital. During the months of June, July, August and September, one hundred and twenty-five birds have been examined. Of these the greater number, one hundred, were from the neighbourhood of Baltimore. Of eighty English sparrows (*Passer domesticus*) from this locality, nine were infected with intracorpuscular parasites; of twelve red-wing blackbirds (*Agelaius phœniceus*), six were infected; two swamp sparrows (*Melospiza georgiana*) and one song sparrow (*Melospiza fasciata*) contained organisms. Of twenty-five birds, including a variety of species from the neighbourhood of Dunnville, near Toronto, Ontario, five were similarly infected, namely, one great horned owl (*Bubo virginianus*) and four crows (*Corvus Americanus*). Although the small number of the infected birds makes it impossible to arrive at any general conclusions as to the particular species prone to infection or the local conditions favouring infection, a fairly accurate idea of the character of the parasites present in these localities can be obtained. The organisms found resemble the malarial parasites in that they undergo their whole development within the red corpuscle at the expense of its substance, transforming its hæmoglobin into characteristic pigment granules. Like the malarial organism they reproduce by segmentation, and the young parasites come to occupy other red corpuscles. Unlike the malarial organisms the younger parasites do not exhibit active amœboid movements. Unlike the tertian and quartan malarial organisms they show no cyclic development in great groups of which every organism is in approximately the same phase of development, and hence the length of their cycle of growth cannot be readily determined. Two types of organism, similar to

those observed in European birds, are found. Characteristic of each type is the morphology of the full-grown organism. In the one group an irregularly shaped body, approximately round or polygonal, occupies one end of the nucleated red corpuscle; the nucleus has been displaced into a transverse position in the opposite end. In the other group the full-grown organism is an elongated body which lies curved along one side of the normally situated nucleus. The irregular parasite (Proteosoma, Labbé), segments in the peripheral circulation by a process which is almost identical with that of the malarial organisms. Segmenting forms of the elongated parasite (Halteridium, Labbe), are not found in the blood taken, for example, from the wing. Associated with both types of organism are certain large bodies, apparently degenerate and not destined to segment, characterised particularly by the fact that, unlike the ordinary full-grown organism, they contain almost no material with an affinity for stains as methylene blue, safranin, etc. Organisms which flagellate as do those of malaria are observed with both the irregular and the elongate parasites. With the elongate organism, indeed, owing to the abundance of these forms, the whole process of flagellation can be studied with the greatest facility. Among the irregular parasites present in different birds different varieties are not observed. Among the elongate parasites, however, considerable diversity of form exists in different hosts, but the lack of extended observations makes it impossible to establish distinct species, although in certain cases the morphological differences observed are very striking. Danilewsky, who first ebserved intracorpuscular parasites in the blood of birds, believed that these organisms are identical with those of the malarial fevers. Certain subsequent observers have attempted to establish an analogy between the different varieties of the malarial parasite and forms which they find in birds. Others have considered the parasites in birds to be entirely independent of those of man. It seems probable that there are in birds at least two distinct species of intracorpuscular parasites. In almost every detail of structure they very closely resemble the malarial organisms of man, but they are, nevertheless, essentially distinct.

THE opinion that distinct toxins require distinct anti-toxins would appear to require some modification. Dr. Calmette has shown that anti-venomous serum protects against scorpion-poison; Roux and Calmette have shown that rabbits vaccinated against rabies, acquire remarkable powers of resisting the action of cobra venom. Again, animals vaccinated against tetanus and anthrax respectively, not only elaborate anti-tetanic and anti-anthrax serum, but such serums have also been found to be in some cases capable of counteracting the effects of cobra venom. Calmette has also shown that anti-diphtheria, anti-tetanus, anti-anthrax, and anti-cholera serums possess decided immunising powers with regard to the vegetable toxin of abrine. Dr. Memmo, working in the Hygienic Institute of the University of Rome, has observed that a distinct, although slight, curative action is produced by anti-diphtheria serum in cases of tetanus. Some extremely interesting investigations by Dr. Marriatti-Bianchi dealing with the action of normal serums from various sources on different bacterial toxins, also tend to confirm the above observations. Bianchi has also been able to reproduce all the phenomena claimed by Pfeiffer to be specific in respect to the behaviour of cholera vibrios in anti-cholera serum, by placing these vibrios in normal serum derived from dogs and cats respectively. It would appear that not only may various anti-toxins modify one and the same toxin, bat normal serums may also produce in some cases protection against toxins.—*Nature.*

THE ROYAL COMMISSION ON HORSE-BREEDING.—The proposals of the Royal Commission on Horse-breeding for the coming season, approved by the Lords of the Treasury, have received the sanction of Her Majesty; and if some slight changes have been made in the rules and regulations which govern the annual show of thoroughbred stallions in London, the distribution of Queen's premiums remains just what it was last year, twenty-four being allotted to the seven districts into which England and Wales are divided for the purposes of this Commission, and five to Scotland, a separate fund being provided for the encouragement of horse-breeding in Ireland. The prize-list, which has not been modified since last year, is as under:—District Class A—Counties of Bedford, Buckingham, Cambridgeshire, Essex, Hertford, Huntingdon, Middlesex, Norfolk, Oxford, and Suffolk—three premiums of £150 each. District Class B—Counties of Cumberland, Durham, Northumberland, and Westmoreland—four premiums of £150 each. District Class C—Counties of Derby, Leicester, Lincoln, Northampton, Notts, and Rutland—four premiums of £150 each. District Class D—Counties of Berks, Cornwall, Devon, Dorset, Hants, Kent, Somerset, Surrey, Sussex, and Wilts—three premiums of £150 each. District Class E—Yorkshire—three premiums of £150 each. District Class F—Counties of Gloucester, Hereford, Monmouth, Salop, Stafford, Warwick, Worcester, and South Wales—four premiums of £150 each. District Class G—Cheshire, Lancashire, and North Wales—three premiums of £150 each. District Class H—Roxburghshire, Berwickshire, and district—one premium of £150. District Class I—Fifeshire and district—one premium of £150. District Class J—Dumfriesshire, Kirkcudbrightshire, and Wigtownshire—one premium of £150. District Class K—Morayshire, Nairnshire, and Banffshire—one premium of £150. District Class L—Ross-shire—one premium of £150.

Correspondence.

To the Editor of THE VETERINARY JOURNAL.

Dudley Veterinary Infirmary,
April 18th, 1897.

Having seen the Halifax "Docking" case, reminds me of the absurdity of making it a punishable offence for a veterinary surgeon to dock a horse. In no way does this lessen the number of horses docked, for so long as the public will have trappers with short tails, so will the supply be equal to the demand.

The suffering caused by docking at the present day is ten times greater than when the professional man had it to do, his charges varying from 1s. to 5s.; then it was legitimately in the hands of the veterinary surgeon, who performs the operation skilfully, and with a minimum of pain; but now I could find you half a score of dealers who shut the doors of their establishments on a Sunday morning, and dock from 5 to 15 horses at a time, in a most crude and unscientific manner; and I am repeatedly asked by clients, who have just bought a new horse, to treat sore and sloughing docks, from the fact that the dealer has not amputated through the joint, but through the bone, and only this week I have had to re-amputate in three cases from this unscientific docking.—Yours faithfully, ABRAHAM GREEN.

SWINE FEVER.

Slateford, Mid-Lothian, April 10, 1897.

SIR,—The subject is getting somewhat stale, but it may do no harm to mention that the Board of Agriculture still continues its efforts on the "western suburban piggeries" and elsewhere. The slaughter of 190 pigs in December, the destruction of another large number in January, the almost continuous clearing out of premises in February and March, and the official record of 261 animals slaughtered in Mid-Lothian last week, is very characteristic work. For nearly three years now the Board has held on its own peculiar course. The killing-out process is seemingly going on as freely as ever. When will the end be? The owner reports to the constable, who telegraphs to London, thereupon the Principal of the Animals' Division or the chief veterinary officer instructs a professor from one of the veterinary colleges, or some distinguished local veterinary surgeon, to proceed to the premises and kill a sow or a few little pigs and forward the organs. If, in the Board's laboratory, 400 miles away, it is decreed that swine fever exists, a travelling inspector is sent down to take charge of the case. When one piggery is cleared out another is about ready for the process, and so the dismal business has gone on with short intervals from June, 1894.

Some months ago a travelling inspector was sent down at express speed all the way to the city of York to see to the burial of two little deceased subjects in the village here, and after inspection this gentleman generously left the constable to his will of the case. From somewhere on the west coast another travelling inspector wrote his instructions to a suburban pig-feeder, and left the man's dead and diseased pigs unburied overnight to probably spread disease among his neighbour's stock, the latter soon after becoming affected. In 1894 for four months a small cluster of piggeries, not 70 yards square, defied the utmost efforts of the Board. One piggery was taken and another left; one infected place was leisurely cleaned and disinfected, and its neighbour remained a picture of filth and disease. The disease recurred there early in 1895, it came back again in 1896, and apparently it is there now, five of the piggeries having been cleared out within the past few weeks, and the rest are under suspicion. "Nursing the disease" is about the only term which can be applied to much of the Board's proceedings.

"The Colinton swine-fever infected area," recently imposed, is a curiosity. Starting very appropriately from Morningside, it travels along the public road to Lothian Burn, takes in all the southern limits of the parish of Colinton, embracing the Pentland Hills and a large tract of country in which swine-fever was never known to exist. On the west it carefully excludes the piggery and the large grave in which lie what remains of the 200 diseased animals which were buried within three feet of the Water of Leith (the rest had probably gone down the river). In its other aspects this scheduled infected area confines itself to the county lines, leaving out by far the worst infected centre, the very hotbed of the disease, which, fortunately for the Board, has recently become absorbed within the city bounds. The very name of the said area was a misnomer. The village and parish of Colinton has been singularly free from the disease. Slateford and Gorgie, as is well known, are the infected districts.

The county constables are now the veterinary inspectors as regards swine-fever. They examine the pigs and grant "movement licenses," and certify as to health and freedom from disease. The suppression and eradication of this contagious and fatal pig disease has been practically taken out of the hands of the veterinary profession and given to laymen and the constabulary, a few local veterinary surgeons only being employed to butcher the first few cases

and wash, and clean, and send on the stomachs and lungs to London. A retired military gentleman is at the head of the official tree and the constable at the bottom.

What can an ex-officer from the army or the commander of one of Her Majesty's warships know (or care) about a pig? Prior to their appointment, many of these travelling inspectors never saw the inside of a piggery. Ignorance of animal diseases is apparently no disqualification, but rather a recommendation, for their office. Some of them naively admit that they don't know anything of swine-fever—"they don't require to know—they have common-sense." Where the "common-sense" of this "swine-fever administration" comes in one fails to see. The Principal of the Animals' Division has a salary of £1,000 per year; the two veterinary advisers (there are only two) at Whitehall, £1,000 and £800 respectively: the travelling inspectors—60 in number—range from £750 to £250; the valuators are well paid for their work; the owners frequently get but scant compensation. The veterinary surgeon gets one guinea for his solitary visit, and the constable for all his care and attention has £1 added to his yearly wages. A bigger sample of London centralization, official red-tape favouritism and bungling it would be difficult to find.

From this state of matters there is no redress. The Board of Agriculture does not brook interference. The owners of the animals must wait its pleasure and comply with its commands. Protests from veterinary surgeons are treated with indifference if not contempt. In these never-ending pig-massacres, with all the gross and quite unnecessary cruelty which at times attends them, the Society for the Prevention of Cruelty to Animals sees nothing wrong. During the past few years a few thousand pigs have been exterminated in these suburban piggeries, and the process continues, while hundreds of carcases have been buried in very objectionable places, yet our county and city local authorities discreetly do not interfere. The Board of Agriculture is a "difficult" subject to tackle. Riding roughshod over all professional and sanitary and other interests, its officials are in no hurry to kill "the goose which lays the golden eggs"—they would rather continue to kill the poor pigs, whilst the country "pays the piper."

Pigs are a very lowly and humble class of animals, but even they and their owners deserve better treatment. A few good, practical, common-sense measures would long ere this have checked the progress of this disease. The Board of Agriculture was warned in time, and repeatedly shown the folly of its course, but it preferred to sow and nurse the disease well at first, and now it is reaping an abundant harvest. The application of military and naval talent to the extinction of swine disease has not been a success.—I am, &c., C. CUNNINGHAM.—*Scotsman*, April 13th, 1897.

Communications, Books, Journals, etc., Received.

Second Report on the Departmental Committee appointed by the Board of Agriculture to inquire into the Etiology, Pathology, and Morbid Anatomy of the Diseases classed as Swine Fever; The Lancet; Land and Water; Veterinarian; Veterinary Record; American Veterinary Review; Journal of Comparative Medicine; Australian Farm and Home; Results of Use of Tuberculin, by James Wilson, M.A.; Bacteriological Diagnosis, by St. John Reid; Country Life Illustrated; Recueil de Médecine Vétérinaire (Alfort); La Presse Vétérinaire (Paris); L'Echo Vétérinaire (Liége); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); La Clinica Veterinaria (Milan); Il Nuovo Ercolani (Pisa); La Revista Veterinaria (Buenos Aires); Deutsche Thierärztliche Wochenschrift (Hannover und Karlsruhe); Archivos de Medicina (Lisbon: José Bastos); Revista de Inspeccion de Carnes Mataderos y Mercados (Vitoria).